

# FusionCube Hyper-Converged Infrastructure Success Cases

HUAWEI TECHNOLOGIES CO., LTD.



# Government

# Hubei Provincial Public Security Department: Audit Platform



*Facing limited equipment room space and an I/O performance bottleneck, the Huawei FusionCube hyper-converged infrastructure and service virtualization enabled unified deployment of the daily audit platform database and applications, simplified system O&M, and improved resource utilization and system reliability.*

## Challenges

- Limited equipment room space, unable to accommodate a large number of devices
- Difficult to deploy services and slow service rollout because physical machines need to be added
- Concurrent I/O performance bottleneck caused by heavy service traffic

## Huawei Solution

- Used the Huawei FusionCube distributed computing-storage converged infrastructure and a high-bandwidth, low-latency passive switch backplane to deliver double storage performance, suited for applications requiring high storage IOPS.
- Leveraged the virtualization technology to minimize the number of physical servers and improve service deployment efficiency.

## Customer Benefits

- Reduced equipment footprint by 75% with high-density deployment.
- Improved resource utilization and shortened the service rollout time to four hours or less by deploying daily audit platform services on VMs.
- Improved 4x performance compared to the old system.

# Xiamen Municipal Public Security Bureau: Police Affairs Cloud Platform



*Huawei FusionCube delivers high performance, energy efficiency, and scalability, meeting our needs for an outstanding police affairs cloud platform.*

## Challenges

- Performance bottleneck due to massive data from various sources, including the integrated policy affairs platform, integrated intelligence information application platform, population information system, entry-exit personnel/certificate information database, and motor vehicle/driver information database
- High power consumption and high electric bills
- Difficult to expand the system, unable to meet service growth requirements

## Huawei Solution

- Used the Huawei FusionCube virtualization appliance and a built-in distributed storage engine to carry core data and improve performance.
- Supported centralized power supply and heat dissipation, and used various dynamic energy-saving technologies.
- Managed all IT sources in a unified manner and supported on-demand flexible expansion.

## Customer Benefits

- Shortened the database response time to 5 to 10 seconds, improved performance by over 5 times, eliminated the database performance bottleneck, and accelerated application development and deployment by over twice.
- Reduced power consumption by 60% and lowered electric bills.
- Supported smooth expansion over the next 3 to 5 years.

# Xuzhou Municipal Public Security Bureau: Efficient Police Affairs Cloud Platform



*Xuzhou Municipal Public Security Bureau built an end-to-end distributed data processing platform with the Huawei integrated police affairs cloud solution. By transforming from the conventional data center architecture to the cloud computing architecture, this platform improves their work efficiency and plays an important role in city security assurance.*

## Challenges

- Unable to share data because 20 systems were established individually
- Low IT resource utilization (20%), unable to fulfill service requirements
- Complicated O&M because IT infrastructure was from five vendors

## Huawei Solution

- Three systems: High-end storage 18000, FusionCube hyper-converged infrastructure, and virtualization software FusionSphere were combined to build a high-reliability, high-performance underlying software and hardware platform.
- Two resource pools: A high-reliability storage resource pool and a high-performance computing resource pool enabled flexible resource allocation based on service types, accelerated service rollout, and improved deployment efficiency by 300%.
- One solution: The integrated police affairs cloud solution offered a data processing platform, and enabled 5-year IT device reuse and seamless service migration.

## Customer Benefits

- Implemented centralized service deployment and data sharing by building a unified data service platform, eliminating information silos.
- Improved resource utilization by 60% by allocating computing and storage resources based on service requirements in a unified manner.
- Shortened O&M time by 75% and improved 4x O&M efficiency by managing computing, storage, and network devices over a unified platform.
- Provided efficient support for Big Data construction by building data and business service platforms.

# The Supreme People's Court of the PRC: Justice Statistics Management Platform



*"Huawei FusionCube was the only device that passed the test with 6400 million data records. Its test result doubled that of midrange computers, with half of the CPUs used by midrange computers."*

**--- Deputy director from the Information Center of the Supreme People's Court**

## Challenges

- **Weak security:** The justice statistics management platform, a mission-critical application of the court, was deployed on a Sybase IQ 15.4 cluster with midrange computers and FC SSD arrays. Information leakage was likely to occur if the platform continued to run on foreign vendors' midrange computers for a long term.
- **Low performance:** The court had 6400 million data records. The data throughput time and computing response time of existing midrange computers were long.

## Huawei Solution

- Used two FusionCube hyper-converged infrastructure solutions, in place of existing midrange computers, to deploy middleware and data warehouse databases, ensuring rapid, efficient data query.

Huawei FusionCube was the only device that passed the test with 6400 million data records. Its ultimate performance helped the customer maximize its ROI and minimize its expense in software licenses (for example, database licenses) and services.

## Customer Benefits

- Improved security and reliability of mission-critical services by replacing existing devices with open, reliable devices.
- Delivered 1.8x to 2.4x higher performance with half of the CPUs used by midrange computers: The data throughput time was shortened from 1753 seconds to 990 seconds, and the data response time was shortened from 221 seconds to 93 seconds.
- Reduced the number of database licenses by 25%, from 80 to 60.



# Jilin High People's Court: IT Platform Construction Project



*"Huawei FusionCube, in place of existing midrange computers, delivered high performance while decreasing our investment, which really impressed us."*

*--- Jilin High People's Court*

## Challenges

- Data volume burst: The data volume of multiple business systems sharply increased since the technological court project was implemented. To analyze massive data, database resource consolidation was in urgent need.
- I/O performance bottlenecks: Massive data was generated during data grouping, accessed during table consolidation, and computed during data processing. This posed a great challenge to a conventional architecture consisting of midrange computers and centralized storage.

## Huawei Solution

- Used the FusionCube hardware platform to eliminate I/O performance bottlenecks. This platform adopted an innovative architecture, a switch backplane with up to 15.6 Tbit/s switching capacity, and 56 Gbit/s IB switch modules.
- Deployed one set of FusionCube in two chassis and configured different caches and switch ports for nodes based on service system requirements to maximize device performance while maintaining high cost-effectiveness.

## Customer Benefits

- 4x higher performance by replacing IBM Power midrange computers with FusionCube
- 3x to 5x higher I/O performance and much higher data processing efficiency thanks to a distributed storage architecture

# Jiangsu Taizhou Local Taxation Bureau: Large-Scale Data Warehouse



*Jiangsu Taizhou Local Taxation Bureau is directly under the jurisdiction of Jiangsu Local Taxation Bureau.*

## Challenges

- Lack of a high-performance data warehouse platform, unable to release tax data from Jiangsu Local Taxation Bureau and analyze tax data for decision-making
- Low scalability and high expansion costs of the existing data processing platform built on conventional midrange computers, unable to meet service requirements facing fast-growing data volume and services
- High TCO and complex maintenance resulting from conventional midrange computers

## Huawei Solution

- Adopted an innovative data warehouse platform to seamlessly integrate computing, storage, and network resources, eliminating I/O bottlenecks of conventional midrange computers.
- Integrated a distributed parallel computing architecture into the Huawei FusionCube database platform, which supported smooth scale-out and elastic and on-demand expansion, ensuring service continuity.
- Adopted an open x86 architecture for the Huawei FusionCube database platform, lowering system and maintenance costs; used FusionManager to manage software and hardware in a unified manner.

## Customer Benefits

- One-stop delivery of the data warehouse by adopting an innovative database platform
- Elastic expansion and online expansion by using the Huawei FusionStorage distributed storage software, facilitating service and data volume growth
- Lower TCO by using an open x86 architecture and implementing unified management of the data warehouse platform, data storage platform, and computing platform



# Shenzhen Customs: Service System



*Shenzhen Customs is directly under the jurisdiction of General Administration of Customs of the PRC, and plays a vital role in the nationwide customs system.*

*The information service system of Shenzhen Customs used x86 servers and FC storage as hardware and the SQL Server as the core database. The performance bottleneck of the system became increasingly severe with service growth.*

*The comprehensive customs service, customs anti-corruption, and risk management platforms of the system are of great importance. They have large data volume and numerous concurrent users, and therefore require high performance and reliability. However, the existing system responded slowly and consumed many resources, hindering service growth.*

## Challenges

- Poor user experience: slow web page responses (timeout or several minutes), SQL statement execution, and database job execution (6 to 43 hours)
- Difficult to perform service rollout when midrange computers were used

## Huawei Solution

- Used the virtualization software FusionSphere, distributed storage software FusionStorage, SSDs, and an internal 56 Gbit/s IB network to build a basic platform with high performance and high reliability.
- Used the P2V and V2V migration tools and performed function tests and performance optimization to migrate existing three systems to FusionCube.

## Customer Benefits

- Better user experience: After the customs system was migrated to FusionCube, its I/O performance was noticeably improved. As a result, the disk queue was reduced by about 7 times, the latency decreased by about 16 times, and the service response time was shortened.
- Smooth migration thanks to an open x86 platform

# Shanghai Customs: Golden Customs Project



*Shanghai Customs is directly under the jurisdiction of General Administration of Customs of the PRC, and is an established customs in China. It has a wide range of service departments and heavy workload, with an annual service growth of around 20%. It ranked No. 1 in terms of main service indicators among nationwide customs departments.*

## Challenges

- **High performance and reliability required:** The comprehensive customs service, customs anti-corruption, and risk management platforms of the existing information service system had numerous concurrent users and therefore required high performance and reliability. However, the existing system responded slowly and consumed many resources, hindering service growth.

## Huawei Solution

- Used the Huawei FusionCube hyper-converged infrastructure to offer a high-performance, high-reliability basic platform.
- Adopted dual-redundancy configuration for the hardware platform, eliminating a single point of failure; used a built-in distributed storage engine to provide 2 or 3 data copies for redundancy, ensuring service system reliability.
- Used the P2V and V2V migration tools to migrate the three platforms to FusionCube.

## Customer Benefits

- Service performance improvement:
  - 5x higher comprehensive customs service management platform
  - 49x higher customs anti-corruption management platform
  - 6x higher risk management platform
- High reliability, ensuring service continuity

# **Public Sector Education, Healthcare, Social Security**

# Nankai University: IT System Transformation



*Nankai University, located in Tianjin, China, is a public research university directly under the jurisdiction of the Ministry of Education of the PRC. Founded in 1919 by prominent educators Zhang Boling and Yan Fansun, Nankai is one of the most prestigious universities in China.*

## Challenges

- **High equipment footprint** because conventional servers and external storage devices were deployed before
- **Complicated, inefficient O&M** because multiple systems were maintained individually
- **Long deployment cycle** because multiple systems were deployed individually

## Huawei Solution

- Adopted the industry-leading FusionCube hyper-converged infrastructure to highly integrate computing, storage, network resources, minimizing equipment footprint.
- Pre-integrated with the FusionSphere virtualization platform to implement on-demand resource allocation, significantly improving resource utilization.
- Supported one-stop delivery through preinstallation and pre-integration.

## Customer Benefits

- Improved system performance by 50% and reduced equipment footprint by using a converged infrastructure that integrates computing, storage, and network resources.
- Improved O&M efficiency by 50% by using a unified management platform of FusionCube.
- Completed deployment within 2 days.

# Xining Municipal Education Bureau: Cloud Classroom



*The center for continuing education of Xining Municipal Education Bureau is under the jurisdiction of Qinghai Provincial Department of Education, and is the training base for Xining distance education. The center wanted to build a secure, reliable, lightweight, and green interactive desktop cloud system for its training center to set up a benchmark for IT education systems in Qinghai.*

## Challenges

- Insufficient system resources, unable to meet job training requirements of many teachers from primary and secondary schools and kindergartens, and training requirements of key teachers
- Poor user experience: slow video playback resulting from low system performance and network bandwidth
- Complex O&M, resulting in low O&M efficiency and high Q&M costs

## Huawei Solution

- Offered an end-to-end FusionCube-based desktop cloud appliance, which used 10GE NICs and switch modules to form a high-performance switch network, addressing heavy video playback workloads.
- Deployed the high-performance desktop cloud solution to offer 160-channel concurrent videos.

## Customer Benefits

- Met training requirements of numerous trainees by deploying the desktop cloud system.
- Offered good user experience by supporting smooth playback of HD videos.
- Supported unified management and maintenance, improved IT resource utilization, and reduced O&M costs by 60%.

# Shanghai Maritime University: Online Logistics Cloud Lab



*"After our logistics cloud lab was migrated to Huawei FusionCube, the time to create, deploy, migrate, and upgrade an application has been shortened by about 60%, and our system O&M efficiency has been dramatically improved thanks to unified management and automation of FusionCube."*

**--- Wang Jie, IT infrastructure director from the logistics research institution, Shanghai Maritime University**

## Challenges

- Unable to provide round-the-clock online services for teachers and students
- Time-consuming, labor-intensive software and hardware experiment resource allocation
- Low reliability and complicated maintenance caused by a variety of conventional devices and lack of full-time maintenance personnel

## Huawei Solution

- Used the FusionCube virtualization appliance to build round-the-clock online logistics cloud labs.
- Embedded with the Huawei cloud OS to improve infrastructure utilization and enable elastic resource allocation.
- Used the unified management platform of FusionCube to simplify IT system O&M and employed the cloud computing technology to improve system reliability.

## Customer Benefits

- Offered round-the-clock online services for 800 logistics scientific research environments.
- Shortened the time to obtain scientific research lab resources from 1 week to minutes.
- Enhanced reliability from 99.9% to 99.998%.



# Gansu Second People's Hospital: HIS



*"Since Huawei FusionCube was deployed, our HIS has been running stably and reliably, and its performance has been improved by over 3 times. As a result, our hospital's efficiency has been remarkably improved. We will migrate other mission-critical services to FusionCube later."*

**--- Director Xu from the Information Center, Gansu Second People's Hospital**

## Challenges

- **Poor service continuity** because the HIS operated slowly and even stopped responding for half an hour or longer during peak hours, intensifying tensions between doctors and patients
- Time-consuming historical data query caused by **system performance bottlenecks**
- **Complex management** because hybrid deployment of various service systems caused frequent service faults

## Huawei Solution

- Adopted the Huawei FusionCube hyper-converged infrastructure to offer outstanding computing and I/O performance, and used various software and hardware acceleration technologies such as distributed storage, PCIe SSDs, and IB to improve service processing efficiency.
- Used FusionCube for unified resource management of physical machines and VMs, and implemented rapid service deployment and isolation while ensuring stable operation of existing service systems.

## Customer Benefits

- Enabled stable, reliable operation of HIS, ensuring service continuity.
- Improved service processing speed by over 3 times, eliminating system bottlenecks.
- Enhanced system flexibility, shortened service deployment time from days to hours, and simplified system management because the systems were independent of each other.

HIS: hospital information system; VM: virtual machine

# The 305 Hospital: Agile IT Infrastructure



*"We are looking for a product that can reshape our IT infrastructure to make computing simple and efficient. Huawei FusionCube hyper-converged infrastructure adopts an innovative architecture that exactly meets our needs."*

**--- Director from the IT information dept. of the 305 Hospital**

## Challenges

- Limited equipment room space, unable to accommodate ever-increasing network, computing, and storage devices to support rollout of miscellaneous services
- Time-consuming, inefficient service rollout due to a long system construction cycle
- Low utilization of basic resources, resulting in high total investment costs in IT system establishment
- Complicated O&M, requiring skilled and professional O&M personnel

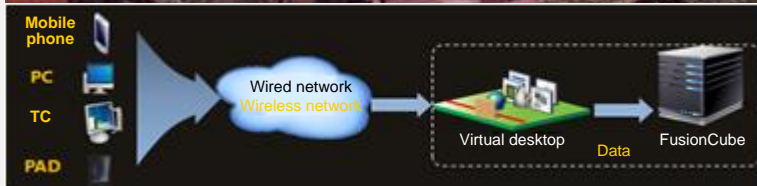
## Huawei Solution

- Used the Huawei FusionCube hyper-converged infrastructure to build an agile IT infrastructure.
- Used the Huawei FusionSphere cloud OS to create an easy-to-manage virtual resource pool for the hospital's data center.
- Used a unified UI to manage the cloud platform.

## Customer Benefits

- Reduced equipment footprint by 60% because FusionCube integrates computing, storage, and network capabilities.
- Accelerated service deployment and rollout thanks to preinstallation and pre-integration capabilities of FusionCube.
- Improved resource utilization by 70% by offering virtual resource pools with Huawei virtualization software.
- Simplified O&M by using a unified UI to manage physical and virtual resources.

# Fujian Medical University Union Hospital: Telemedicine Cloud Platform



*Fujian Medical University Union Hospital is a top comprehensive hospital dedicated to healthcare, higher medicine education and scientific research. It enjoys a reputation of the cradle of modern medicine of Fujian Province.*

## Challenges

- Limited equipment room space: A cloud platform was required to reduce equipment footprint.
- Difficult to manage and maintain the existing OA platform: Efficient IT infrastructure was required.
- Lack of an application virtualization platform for mobile office.

## Huawei Solution

- Configured the desktop cloud appliance, including FusionCube, virtualization software FusionSphere, and desktop cloud software FusionAccess.
- Used the FusionCube hyper-converged infrastructure integrating computing, storage, network, and virtual resources, combined with FusionStorage, to offer a cloud platform.
- Used FusionAccess to provide desktop cloud and application virtualization functions, enabling desktop office for OA personnel and mobile access to the hospital's application systems from doctors and nurses' workstations.

## Customer Benefits

- 70% less equipment footprint by using the desktop cloud appliance
- Higher resource utilization and lower maintenance costs by using cloud and application virtualization
- 60% higher work efficiency by using the desktop office and mobile access systems

OA: office automation

# Xiamen Municipal Human Resources and Social Security Bureau: Smart Medical System Database Acceleration Project



*After the Oracle database was deployed on FusionCube and some services were migrated to FusionCube, the smart medical system witnessed an improvement in the query speed of social security and medical insurance services.*

## Challenges

- Difficult to scale out because the existing smart medical system was deployed on midrange computers and storage devices
- Slow query of the smart medical system because its Oracle database ran on midrange computers and storage devices

## Huawei Solution

- Used the Huawei FusionCube database platform and OceanStor to build a smart database system.
- Adopted the FusionCube hyper-converged infrastructure integrating computing, storage, network, and virtual resources, and deployed a distributed storage system and an IB network to improve overall database system performance.

## Customer Benefits

- Supported smooth expansion due to the open architecture of FusionCube, maximizing the customer's ROI.
- Improved data query speed fivefold by leveraging a high-performance FusionCube database platform.

# Guizhou Administration of Work Safety: Work Safety Emergency Command Platform



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*Golden safety project: Guizhou Administration of Work Safety (Guizhou Administration of Coal Mine Safety) of the PRC is responsible for comprehensive administration and supervision of work safety and coal mine safety in Guizhou, China. It needed an IT-based work safety emergency command platform to better undertake its responsibilities.*

### Challenges

- **Difficult to manage and maintain** due to a variety of service systems.
- **High reliability, availability, manageability, and data security required** because mission-critical systems had to rapidly respond to concurrent access requests from numerous users for a long term.

### Huawei Solution

- Used the fully redundant, highly reliable **Huawei FusionCube virtualization appliance** to accelerate service recovery; offered built-in VM templates to simplify deployment, and provided unified management interfaces to implement centralized device monitoring and simplify O&M.
- Deployed an **all-round security, network, and IT solution** to accelerate service rollout and promptly monitor and eliminate potential security risks.
- Adopted a **distributed parallel storage architecture** to build a data processing platform; supported rapid, smooth service expansion for seamless application upgrades.

### Customer Benefits

- Minimized onsite configuration errors, improved deployment efficiency, and **shortened the service rollout time** from weeks to one day thanks to the pre-integrated software and hardware virtualization solution.
- **Improved O&M efficiency by 5 times** because of automated expansion, linear smooth expansion, and automatic hardware discovery upon startup.
- **Enhanced system security and reliability** by providing an all-round security solution.

# Finance



# Infocast: Efficient Securities Trading Data Release Cloud Platform



*"We chose Huawei FusionCube due to its unified management, software-defined storage, and converged, and high-density design. We appreciated Huawei's professional suggestions and were impressed by rapid response of Huawei 's R&D and service personnel. Huawei is now our strategic partner in the ICT domain. We have recommended Huawei's products to our friends."*

**--- Infocast**

## Challenges

- High performance required because the cloud platform needed to release real-time securities trading data for 10+ banks and 300+ securities companies in Hong Kong, and **interworked** with the systems of Hong Kong Exchanges (HKEx) **in real time**
- **High reliability** required for securities trading
- **High integration**, less equipment footprint, and simplified O&M required because the cloud platform needed to be deployed in HKEx's equipment room

## Huawei Solution

- Used efficient storage software to eliminate I/O performance bottlenecks, remarkably improve performance, and support heavy concurrent traffic and real-time transactions.
- Adopted a full-redundancy architecture, a passive backplane, and cloud computing to ensure high reliability.
- Deployed the cloud platform that integrated computing, storage, and network resources to provide a unified UI, less equipment footprint, and simplified management.

## Customer Benefits

- Superior performance, enabling the service system to support **3000 concurrent access requests and advanced query**
- Highly-reliable cloud platform, meeting **zero-fault** requirements of the HKEx' data center
- Less equipment footprint, **4x** higher hardware resource utilization, and **30% less** OPEX because of simplified management

## Orient Securities: Cloud Platform



*Orient Securities Co., Ltd. is a comprehensive securities company approved by China Securities Regulatory Commission. The company owns a registered capital of CNY3293 million in total, and has over 1000 employees. It offers various services, including securities underwriting and sponsoring, trading agents, investment consulting, financial advisory, enterprise mergers and acquisitions, and fund and assets management.*

### Challenges

- Lack of effective technical means to prevent unauthorized access to USB, serial, and parallel ports on PCs for confidential information theft, and lack of capability to restore local data on PCs in the event of file damage or data loss
- **Complicated management** of physical servers and high O&M costs

### Huawei Solution

- Used a secure desktop cloud solution, in which the function for writing data over USB ports is disabled by default and read-write policies are flexibly controlled over the desktop cloud management system, avoiding unauthorized access from mobile storage media.
- Used two sets of FusionCube to implement unified desktop cloud and computing virtualization on one cloud platform.
- Used management software to implement automated, **unified O&M** and centralized VM management.

### Customer Benefits

- Minimized risks in unauthorized access from mobile storage media, for example, USB flash drives.
- Improved O&M efficiency **over tenfold** by using a unified management platform to centrally manage computing resources, upgrade software, and provision applications.

# CITIC Trust: Internet Finance Transformation Project



CITIC Trust is China's largest trust company in terms of managed assets. At the end of 2012, The assets managed by CITIC Trust reached CNY600 billion, ranked No. 1 in China for five consecutive years.

CITIC Trust wanted to build a new IT system based on a cloud architecture to support and facilitate its service growth.

**"This IT platform is exactly what we need."**

**--- Chu Zhuangyi, CITIC Trust CIO, former head of the information center technology department, China Securities Regulatory Commission**

## Challenges

- Limited equipment room space and power supply capability because the customer's office building is leased in core areas
- Slow service rollout with 100+ applications, unable to meet service expansion requirements
- Complicated IT system O&M because hardware was from multiple vendors such as IBM, HP, and Cisco; skilled, professional maintenance personnel required

## Huawei Solution

- Huawei FusionCube virtualization appliance solution, integrating computing, storage, network, and virtual resources
- Unified resource pooling and flexible resource allocation based on service loads, improving resource utilization
- Rapid VM creation, accelerating service rollout

## Customer Benefits

- 75% less equipment footprint due to high integration, 67% less energy consumption, and about 20% initial investment
- 80% shorter service rollout time by using VM templates and service modeling
- Simplified maintenance and 30% fewer O&M costs by managing computing, storage, and network resources over a unified management UI

# BME: Efficient Stock Trading System



*Bolsas y Mercados Españoles (BME) is a Spanish company that deals with the organizational aspects of Spanish stock exchanges and financial markets. The company owns stock exchanges in Madrid, Barcelona, Bilbao, and Valencia. In addition to the trading of shares and bonds, BME offers access to a number of other financial products and the clearing and settlement of operations.*

## Challenges

- Difficult to integrate with underlying hardware from multiple vendors, high integration costs, and long deployment cycle
- Difficult to manage and maintain because hardware was from multiple vendors
- High reliability required because the system runs mission-critical services of the stocks trading system

## Huawei Solution

- FusionCube solution for one-stop delivery of the hardware platform
- Preinstallation, pre-integration, converged architecture, and unified management of software and hardware, simplifying deployment and O&M and shortening the delivery time
- Cloud platform HA and live migration, eliminating single points of failures to minimize device downtime and ensure core service continuity

## Customer Benefits

- One-stop delivery and service rollout time shortened from weeks to days due to a hyper-converged architecture
- 45% less OPEX thanks to unified management and automated O&M
- 99.95% system reliability because of VM HA and no single point of failure

# Qinghai Rural Credit Cooperative: IT System



*Qinghai Rural Credit Cooperative owns 346 branches in the whole province, and is a crucial financial institution that supports local economic development.*

## Challenges

- Low performance, unable to support fast-growing service traffic and ever-innovating service models.
- Limited equipment room space: The latest cloud computing technology was needed for the ODS and counter frontend system to implement unified resource deployment and management and on-demand scheduling, ensuring rapid service rollout and highly reliable services.

## Huawei Solution

- Deployed the Huawei FusionCube virtualization appliance to run the ODS and counter frontend system, and employed the latest cloud computing technology for unified deployment and management of computing, storage, and network resources, shortening service rollout time.
- Used a built-in distributed storage system to reduce power consumption and equipment footprint, adopted a random multi-backup mechanism to implement multi-blade fault tolerance and ensure service continuity, and used high-performance storage media with power-off protection, enhancing service system I/O performance and processing capabilities.

## Customer Benefits

- 70% higher resource utilization because of on-demand resource allocation, and 30% less investment
- 10x higher storage read-write performance, eliminating application performance bottlenecks
- Refined, visual management



# China CITIC Bank: Flexible, Reliable Data Platform



*China CITIC Bank is China's seventh largest lender in terms of total assets. It is formerly known as CITIC Industrial Bank, changing to its current name in August 2005. China CITIC Bank, established in 1987, is a nationally comprehensive and internationally oriented commercial bank headquartered in Beijing. The bank currently operates worldwide, while still maintaining a strong foothold on the mainland banking industry.*

## Challenges

- The ODS and ALM systems needed to be deployed to run production, SIT, UAT, and DEP environments, resulting in high investment.
- UAT, SIT, and DEP required two sets of application systems; therefore, an open IT architecture was needed to deploy multiple Oracle database instances and facilitate system expansion.
- DR was required to ensure high reliability of production and UAT.

## Huawei Solution

- Deployed the Oracle database on the Huawei FusionCube hyper-converged infrastructure to run ODS and ALM.
- Used OceanStor 9000 as well as tape libraries to back up massive historical data generated by FusionCube.
- Created DR nodes and provided an application log-level DR solution based on DataGuard.

## Customer Benefits

- 50%+ less initial investment costs
- Flexible, on-demand deployment of multiple database instances, allowing multiple services to access the database
- Stability and reliability: second-level RPO and minute-level RTO



# Telecommunications

# China Mobile Jiangsu: High-Performance Database Platform of the CRM System



*The CRM system of China Mobile Jiangsu served over 60 million subscribers. With the increase in the number of subscribers and rollout of new services, the load of the CRM database was on the rise. The existing midrange computers were upgraded to full configuration, but they could not meet requirements for performance and service reliability, which affected subscriber experience. To address this issue, the Huawei FusionCube database platform was deployed to offer a data distribution center.*

## Challenges

- High-performance, high-scalability, and highly cost-effective database platform required to meet service growth requirements
- Good compatibility with the existing CRM system and smooth service migration required
- 100 TB-level Big Data analytics and business intelligence mining required

## Huawei Solution

- Used the Huawei FusionCube database platform to build a data distribution center for providing data to peripheral systems.
- Adopted the gradual switching method to ensure smooth migration.
- Built a high-performance read database and separated read and write operations to reduce the load of the primary database and support rapid analytics of DW data, for example, operation analysis, real-time marketing, and reporting.

## Customer Benefits

- Halved the load of the primary database, improving its reliability without additional investment.
- Ensured smooth system expansion and migration, and enhanced system performance while reducing upgrade and O&M costs.
- Provided 100 TB-level Big Data mining and analytics, promoting business intelligence and service innovation.

# Asia Pacific Telecom: Desktop Cloud Construction Project



<http://maps.google.com/>



*"The Huawei FusionCube desktop cloud appliance enables rapid deployment of IT resources, reduces O&M costs, and ensures high reliability and security of service systems, freeing our IT staff to focus more on backbone network O&M."*

**--- Project leader from Asia Pacific Telecom**

## Challenges

- Ever-increasing IT O&M costs with service growth
- Great threats to information assets security because of various security risks in the conventional PC architecture
- Low IT resource utilization and high TCO caused by a conventional PC architecture
- Long service rollout cycle due to a complicated service deployment process

## Huawei Solution

- Deployed the Huawei FusionCube desktop cloud solution.
- Used the virtual desktop management software to provide secure access to and centralized management of user desktops.
- Implemented efficient resource utilization through server consolidation and rapid system deployment through preinstallation and pre-integration.

## Customer Benefits

- Reduced IT OPEX by **30% to 70%** and improved IT O&M efficiency by **2 to 10 times**.
- Offered **all-round enterprise information security assurance**.
- Improved IT resource utilization by **over 70%**.
- Shortened the service deployment time **from weeks to days**.

# Transport

# Guangdong Marine Safety Administration: Smart Maritime Affairs Platform



"After comparing appliance devices from multiple vendors, we found that only the Huawei FusionCube data warehouse acceleration solution could meet our requirements for storage of massive data and high-performance analysis. FusionCube is a 12 U chassis that provides millions of IOPS, smart power consumption adjustment, high energy efficiency, and less equipment footprint. These features were really impressed us."

--- **Zheng Honghui**, head of the information department,  
Guangdong Marine Administration

## Challenges

- Increase of at least TB-level data per year
- High efficiency required for analysis of massive data and multi-dimensional presentation
- A unified platform and interface required for easy resource allocation and sharing
- High TCO, including device purchase, power consumption, and maintenance costs, resulted from massive data

## Huawei Solution

- Used Huawei FusionCube to run the core data warehouse, offering ultimate performance.
- Provided a built-in distributed storage engine and multiple data copies to improve data reliability.
- Offered a user-friendly UI to centrally manage all IT resources, lowering O&M costs.

## Customer Benefits

- PB-level storage capacity and easy expansion, meeting service growth demands of the next decade
- Simplified maintenance and 45% less OPEX thanks to unified resource management over a unified platform
- 50% higher service efficiency

# Heilongjiang Maritime Safety Administration: Two-level Data Centers



*Heilongjiang Maritime Safety Administration chose the Huawei FusionCube hyper-converged infrastructure to build a unified platform, facilitating its IT infrastructure and system construction and helping achieve its goal of "one system, two platforms."*

## Challenges

- Maritime Safety Administration of the PRC instructed its subordinate departments to deploy two-level data centers during the period of 2011 to 2015 to achieve the goal of "one system, two platforms".
- The customer required rapid deployment of multiple test service systems and resource sharing among multiple R&D and testing teams.

## Huawei Solution

Huawei deployed the FusionCube hyper-converged solution integrating computing, storage, and network resources to meet customer demands:

- Used the virtual cluster for rapid deployment of the maritime system.
- Used the database cluster for R&D and testing teams to share database storage resources.
- Used the integrated solution for unified management of physical and virtual resources, improving O&M efficiency.

## Customer Benefits

- 10x higher service deployment efficiency
- Simplified management and 3x higher management efficiency



# Chengdu Railway Bureau: Vocational Training Base Desktop Cloud Project



## Challenges

- To offer better vocational training for over 100,000 employees each year, the vocational training base of Chengdu Railway Bureau wanted to build a multimedia training classroom system to use new education means such as electronic courseware and network examination.
- Training base administrators needed simplified maintenance, rapid system restoration, and seamless integration with existing teaching software.

## Huawei Solution

- Deployed a cost-effective desktop cloud appliance based on FusionCube, which provided preinstallation, system restoration upon startup, and linked clone, suited customer needs for training classroom investment, management, and maintenance.

## Customer Benefits

- Simplified deployment and shortened deployment time due to one-stop delivery.
- Supported rapid system restoration and simplified maintenance thanks to system restoration upon startup and linked clone.
- Offered better, more stable training experience with Huawei high-quality desktop cloud transmission protocols.

# Shanghai Airport Authority: ACDM Project



*Shanghai is China's important port, and also China's first city with two international airports, namely, Shanghai Pudong International Airport and Shanghai Hongqiao International Airport located in the east and west of the city respectively.*

*On May 28, 1998, approved by Shanghai Municipal Government, Shanghai Airport Authority was established to perform unified operation management of the two international airports.*

## Challenges

- **High performance** required for high service burst and internal data sharing within the ACDM system
- **High system reliability** required for round-the-clock nonstop running of the ACDM system
- **Good online scalability** required for development of enhanced functions based on service requirements

## Huawei Solution

- Used the FusionCube hyper-converged infrastructure to offer 300,000 IOPS; leveraged built-in virtualization to dynamically configure system resources, facilitating ACDM service burst and service growth of the next 2 to 3 years.
- Adopted dual-redundancy configuration for the hardware platform, avoiding a single point of failure; used a built-in distributed storage engine to provide 3 data copies, ensuring stable operation of the ACDM system.
- Deployed the FusionCube virtualization appliance to support online blade expansion, a backplane with various interfaces, and local DR of the ACDM system.

## Customer Benefits

- Addressed high concurrency and high service burst of the ACDM system.
- Enhanced reliability, ensured service continuity, and improved airport service quality and passenger satisfaction.
- Supported on-demand expansion and reduced initial investment thanks to flexible resource configuration.

# Hong Kong Airlines: Desktop Cloud Project



*"This signature is an alliance of two giants. With Huawei's proven desktop cloud technologies, Hong Kong Airlines has cut down costs and improved work efficiency, helping achieve our goal of digital aviation as early as possible. In the future, we will open up more international routes and provide more products and services to become an international, digital airline company."*

**--- Yang Jianhong, President of Hong Kong Airlines**

## Challenges

- Difficult to maintain due to a high failure rate of conventional PCs
- High security required for customer information, flight data, and other confidential information
- High PC power consumption: over 500,000 kWh per year

## Huawei Solution

- FusionCube-based desktop cloud solution, combined with various O&M tools, a self-service platform, and a desktop manager, improving O&M efficiency
- End-to-end security design, avoiding data leakage
- Minimal client power consumption of 5 W

## Customer Benefits

- 10x higher O&M efficiency due to centralized, remote management and control
- Higher data security due to isolation between terminals and information as well as centralized processing and storage of desktops and data
- About 60% less power consumption per year

# **Radio and Broadcasting Media and Entertainment**

# Shenzhen Media Group: News Center Project



Shenzhen TV Station was set up in 1994, and now owns a dozen of TV channels. SZTV is mainland China's first satellite TV landed on Hong Kong's three major television networks. Shenzhen TV Station wanted to use advanced technologies such as Internet, cloud computing, and Big Data to establish a converged news center content production system, making itself a benchmark and showcase for China's TV stations.

## Challenges

- Elastic allocation and unified management of resources required for media processing, service support, public services, and IT infrastructure of various news service systems in a new media data center
- Low resource utilization and complicated O&M due to a variety of multimedia production terminals

## Huawei Solution

- Deployed the Huawei FusionCube virtualization appliance integrating computing, storage, and network resources and the FusionSphere cloud OS to provide a high-performance virtualization infrastructure platform for diverse applications, such as the Sobey Newstar news system, streaming media service, manuscript service, database, IP-based receiving and recording, transcoding migration, and synthesis.
- Built an HD video synthesis rendering computing pool based on the GPU pass-through solution.
- Offered 200 virtual desktops for 2 Mbit/s streaming media editing and remote news production over the office network.

## Customer Benefits

- Elastic allocation and unified remote management of resources after virtual resource pools replaced conventional synthesis workstations
- 30%+ higher resource utilization and 50%+ higher O&M efficiency because a single type of terminal provided multimedia (audio, videos, images, and manuscripts) editing

# SARFT: Integrated Monitoring and Supervision Resource Application Platform



*Huawei used FusionCube, instead of the conventional isolated and chimney architecture, to provide a unified software and hardware platform for the supervision center, and deployed a small number of desktop clouds.*

## Challenges

- Complicated management because all service systems of SARFT's supervision center were deployed on several hundred physical servers of multiple brands
- Low resource & space utilization and deployment efficiency due to ever-growing services and deployment on physical servers

## Huawei Solution

- Used the FusionCube hyper-converged infrastructure solution integrating computing, storage, and network resources in a blade chassis, and used FusionManager for unified management and simplified O&M.
- Used the FusionStorage distributed storage software to efficiently integrate hard disks in each chassis, ensuring high performance and reliability while reducing equipment footprint.
- Provided automated template-based deployment for the application platform, improving service deployment efficiency.

## Customer Benefits

- Simplified O&M through unified management.
- Offered a server consolidation ratio of higher than 1:8 thanks to virtualization, and reduced equipment footprint by 1/3 compared to the conventional deployment mode of server s + storage.
- Shortened the service deployment time from 2 hours to half an hour or less.



# Guangdong Radio & Television Station: Media Cloud Production Platform



*The news content support cloud platform, the core of the media data center of the news cloud production platform, is responsible for content management of the news content cloud library.*

*The cloud computing platform is the support platform of the whole system. Its convergence, efficiency, and sharing were the key to the success of the entire project.*

## Challenges

- Lack of capabilities to integrate content from various sources, such as Internet threads, internal resources, user-generated content (UGC), and content from 3G or 4G terminals and sites
- Unable to produce news program by using various tools over different networks, and only the fixed address and internal network modes supported
- Unable to interwork with Internet applications such as WeChat, microblogs, and mobile applications, and lack of effective ways to interact with audience

## Huawei Solution

- Used the FusionCube **virtualization appliance** as the infrastructure platform to **share** computing and news content resources among various modules.
- Deployed the industry-leading **FusionAccess desktop cloud** system to produce HD videos and images.
- Used the **unified cloud management platform** FusionManager to centrally manage server virtualization and desktop clouds, improving management efficiency.

## Customer Benefits

- **Stimulated Internet-based news programs** thanks to the content sharing cloud platform.
- **Improved production efficiency threefold** due to materials uploading from various terminals such as PCs, Pads, and mobile phones over different channels.
- **Simplified O&M** because the unified cloud management platform centrally managed computing, storage, and network resources, and virtualization software.

# Large Enterprise

# Sinopec: Efficient Enterprise Data Warehouse System



*"After a period of optimization and testing, Huawei FusionCube for SAP HANA has showcased outstanding performance in terms of system response time, data analysis, and efficiency, helping improve customer satisfaction."*

**--- Li Jianfeng, deputy director from the information management department, Sinopec**

## Challenges

- Unable to support Sinopec's four major services (exploration, oil fields, refining, and sales) and financial reporting systems of its 80+ secondary units
- Rapid increase of BW data volume from 30 TB to 100 TB
- Database I/O performance bottleneck due to fast-growing data volume, especially for the primary data warehouse during the monthly settlement period

## Huawei Solution

- Used x86-based FusionCube to build a high-performance data warehouse solution, streamlining the BW system and supporting on-demand system expansion with service growth.
- Used distributed storage software, PCIe SSDs, and a 56 Gbit/s IB network to build a high-performance distributed storage system, delivering 50% to 75% shorter network latency than the industry average and 60% higher HANA database loading performance for Big Data computing.
- Adopted full-redundancy design, avoiding a single point of failure.

## Customer Benefits

- Offered a general-purpose, open x86 platform in place of the closed IOE system, and built the world's largest single-cluster HANA solution.
- Shortened the data uploading time from 2 to 4 hours to 0.5 or 1 hour, and improved monthly statement service processing efficiency by 3 to 5 times on average.
- Improved stability and reliability, supporting financial system workloads during peak hours.

# China National Petroleum Corporation: HANA Cluster System



*China National Petroleum Corporation (CNPC) is a Chinese state-owned oil and gas producer and supplier, and China's largest integrated energy company. Its main business scope includes oil and gas business, engineering technical services, petroleum engineering construction, petroleum equipment manufacturing, financial services, and new energy development.*

## Challenges

- Low performance of the existing data warehouse could not support CNPC's business analysis system for efficient HR, financial, and exploration management.
- Although high-end midrange computers and storage devices were deployed for the existing data warehouse, the data warehouse was unable to meet enterprise needs due to I/O performance bottlenecks caused by separation of computing and storage.
- Production and DR systems needed to be deployed for CNPC's core system, namely, its enterprise data warehouse system, to ensure high security and reliability.

## Huawei Solution

- Deployed the SAP HANA appliance solution (63 nodes in 11 chassis), FusionStorage distributed storage engine, high-performance ES3000 PCIe SSDs as the log volume, and a 56 Gbit/s IB network to reduce the data persistence latency to 150  $\mu$ s and support 1,000 concurrent tasks, capable of processing heavy concurrent access traffic.
- Partnered with SAP to offer a HANA database DR solution across Beijing and Jilin with a distance of 1000 km to ensure service continuity.

## Customer Benefits

- Improved storage network bandwidth by about sixfold, enhanced HANA data persistence performance, and boosted NAHA database loading performance by about 50% thanks to a distributed storage architecture.
- Ensured stable, reliable operation of the system and services by using a DR solution.

# Sinopec Guizhou Company: Operation Management Platform



*Sinopec Chemical Commercial Holding Company Limited not only consolidated its advantages in traditional oil and gas business, but also planned to develop new business, committed to creating three platforms for entity, Internet of vehicles, and non-bank financial services respectively to become an integrated service provider. The founding of Yijie was an important step for Sinopec to move towards professional, market-centric provisioning of new business. Yijie planned to make further efforts in expanding centrally purchased commodity coverage, reducing procurement costs, integrating system resources, innovating marketing methods and mechanisms, and cultivating professional operations management teams.*

## Challenges

- **Rapid service rollout required** to gain a firm foothold in the fiercely competitive retail business
- **Low performance (structured data processing only), low scalability, and high expansion costs** of the conventional data processing platform, unable to analyze massive data and support rapid growth of new business
- **High reliability and security required** to ensure no loss of data

## Huawei Solution

- Used the fully redundant, highly reliable **Huawei FusionCube virtualization appliance solution** to accelerate service recovery; offered built-in VM templates to simplify deployment, and provided unified management interfaces to implement centralized device monitoring and simplify O&M.
- Provided local dual-copy deployment, local backup, remote asynchronous duplication, and 4 data copies to prevent loss of transaction data.
- Adopted a **distributed parallel storage architecture** to build a data processing platform; supported rapid, smooth service expansion for seamless application upgrades.

## Customer Benefits

- **80% less service rollout time** by leveraging the cloud computing technology
- A **sharp rise in computing speed** for FusionCube-based services
- **High data reliability and service stability**: no complaints about frontend services and no loss of platform data



# China Huaneng Group: HANA Platform



*Huaneng Group is a state-backed Chinese firm who actively participates in management innovation and technical innovation. Huawei FusionCube for SAP HANA, a high-performance, large-capacity platform that supports operation and analysis applications, has made great contributions to improvement of Huaneng Group's capabilities in production operation and management and its business development.*

## Challenges

- Accurate and timely data analytics required for decision-making and production management to enhance safety, reduce power consumption, and improve enterprise competitiveness
- Low capacity and performance of the existing HANA platform and deterioration of overall performance, unable to support ever-increasing data volume and business applications
- Limited reconstruction budget and high computing capability, system capacity, and overall performance required

## Huawei Solution

- Built new SAP HANA infrastructure, reused the existing system as the R&D and testing platform, and designed the system upgrade scheme and service migration scheme based on onsite conditions and customer demands.
- Deployed the **high-performance, high-reliability** Huawei FusionCube for SAP HANA infrastructure integrating computing, storage, and network resources, supporting 10GE or 56 Gbit/s IB switching, and delivering low storage latency and non-blocking network switching for NANA.
- Adopted a **hyper-converged architecture** to integrate new-generation processors and distributed storage.

## Customer Benefits

- **Improved decision-making efficiency** and effects because the new platform supported enriched data analysis and business applications to promptly provide management operation and production data for decision makers.
- **Tripled** platform capacity (from 4 x 512 MB to 4 x 1 TB), used processors with **2x to 3x** higher computing performance, and offered **3x to 5x** higher overall performance thanks to high-performance hyper-converged infrastructure.
- **Halved** hardware investment due to all-in-one, high-performance design, and shortened the O&M time by **80%** due to unified management of the data storage network and computing platform.



# China Tobacco Hunan Industrial Co., Ltd.: ERP System



*China Tobacco Hunan Industrial Co., Ltd., is under the jurisdiction of State Tobacco Monopoly Administration (China National Tobacco Corporation). Its main business scope includes tobacco products production and sales, tobacco-related materials, tobacco machine import, cigarette export, other production and operation, diversified management, assets management related to production and sales of tobacco products, etc.*

## Challenges

- Interconnected tobacco system required to create a dynamic IT value chain as the Chinese government emphasized Industry Interconnection and Industry 4.0
- Complicated system architecture and high performance, reliability, and scalability required for hardware devices because the ERP system is the core of the customer's IT system

## Huawei Solution

- Used FusionServer RH8100 V3 8-socket servers as the HANA solution hardware platform, offering high performance, scalability, and availability (automatic failovers) to ensure service continuity.
- Used the FusionCube database platform to run DB2 databases, offering outstanding computing performance and architecture redundancy.

## Customer Benefits

- Higher efficiency in real-time data processing and IT-based business analysis and decision-making as a result of the ERP acceleration system of an efficient IT production platform
- 10x higher IOPS and over 4x higher performance improvement thanks to a distributed, high-speed storage engine for the FusionCube database platform

# COFCO Coca-Cola: IT Platform Upgrade



*COFCO Coca-Cola, a joint venture of COFCO and Coca-Cola, owns 12 Coca-Cola beverage production and sales subsidiaries in China. COFCO Coca-Cola has been growing rapidly and become one of the world's top 10 Coca-Cola bottling groups.*

## Challenges

- Lack of an efficient, stable IT platform used to support mission-critical IT services, including ERP, CRM, OA, enterprise mailbox, and HR services, and to meet ever-growing service requirements

## Huawei Solution

- Deployed three sets of FusionCube virtualization appliances, and pre-integrated with a high-performance computing platform, high-speed switch network, distributed parallel storage system, and virtualization cloud platform software.
- Built a unified, converged, and optimized enterprise private cloud platform, combined with virtual resource pools, to support mission-critical IT service systems, including ERP, CRM, OA, enterprise mailbox, and HR services.

## Customer Benefits

- Completed smooth migration from the conventional IT architecture to an elastic cloud computing platform.
- Enhanced service performance, improved operational efficiency of the IT system, simplified management, and reduced IT OPEX.

# Yantai Wanhua Group: Efficient Enterprise Data Warehouse System



Wanhua, based in Yantai, China, is a competitive MDI manufacturer in the world. It is also the only Chinese vendor with proprietary intellectual property rights in MDI manufacturing technologies.

Upgrading the hardware platform of the BW system improved Wanhua's overall operation analysis capabilities and laid a solid foundation for it to become an innovative, world-class chemical company.

## Challenges

- Low performance of existing BW and ERP systems, unable to meet service requirements; customer expectations to migrate BW and then ERP to the SAP HANA database
- Low performance, I/O bandwidth, and scalability of the conventional IOE architecture
- Poor user experience resulting from increasingly slow data presentation and reporting

## Huawei Solution

- Deployed the Huawei SAP HANA appliance solution consisting of 3 database nodes and 4 storage nodes to replace the IOE solution.
- Significantly improved I/O bandwidth, scalability, and database warehouse performance, streamlined the BW system, and supported on-demand system expansion with service growth.
- Used distributed storage software, PCIe SSDs, and a 56 Gbit/s IB network to build a high-performance distributed storage system, delivering 50% to 75% shorter network latency than the industry average and 60% higher HANA database loading performance.

## Customer Benefits

- At least 20x higher data query performance with Huawei SAP HANA appliance
- Universal, open x86 architecture instead of closed IOE system
- Efficient, stable production and operation due to a more efficient primary data warehouse

# Huawei: R&A Data Warehouse Platform



*"The BI platform in the information era must provide large capacity, high computing performance, and flexible, varied applications to help large enterprises transform their business. Unlike the conventional server and storage mode with performance bottlenecks, FusionCube integrates storage, network, and computing devices to support our future BI service growth."*

**--- Luo Zhiyong, chief technical expert in the ERP sector**

## Challenges

- Fast data growth because the DW&BI platform integrated corporate-wide data generated in all transactions, with an increase of at least 10 TB data volume per month and over 9,000 active users
- Complicated system because the system needed to support management and decision-making of three business groups, 14 regions, and various operating bodies
- Lack of flexibility and real-time performance in various reporting applications
- High expansion cost because midrange computers were costly and unable to meet performance expansion requirements

## Huawei Solution

- Deployed the Huawei FusionCube expansion data warehouse infrastructure platform.
- Used various software and hardware acceleration technologies, such as distributed storage, PCIe SSDs, and a 56 Gbit/s IB network.

## Customer Benefits

- Improved performance: The reporting time was shortened from 8 hours to 5 hours, and the number of concurrent users increased from 600 to 1500.
- Halved equipment footprint and simplified service deployment thanks to high integration, and eased migration to the new system without any software altering.
- Supported smooth expansion to meet future BI service requirements and reduced expansion costs by over CNY10 million.

# Commerce

# Jinyi Company (Jilin Houde Food): Enterprise Office Cloud Project



 吉林厚德食品有限公司  
JILIN HOUDE FOOD CO., LTD.

"Jinyi Company (Jilin Houde Food) is an egg supplier for Kentucky Fried. We needed a platform able to create an efficient and reliable development model and to ensure food safety throughout the process. This project was our first move to the cloud, and also a national key project for rejuvenation of China's northeast industrial base. We chose Huawei to build such a platform, and we were satisfied with the enterprise office cloud platform that Huawei deployed based on cloud computing and Big Data technologies."

--- Jinyi Company (Jilin Houde Food)

## Challenges

- Lack of an enterprise office cloud platform, **unable to support service growth**
- **Low response speed and work efficiency of IT departments** because an increase in the company campus and staff made office computer deployment ever-increasingly complicated
- Complicated management and **low O&M efficiency** for the conventional office system

## Huawei Solution

- Used high-performance, high-reliability FusionCube infrastructure to build an enterprise office cloud platform with redundant links and components, live migration of virtual desktops, and HA.
- Deployed a desktop cloud solution featuring centralized design, plug-and-play installation, and rapid service provisioning.
- Offered unified-O&M tools to simplify maintenance and improve efficiency.

## Customer Benefits

- **Supported unified management and maintenance of multiple office desktops** over a cloud platform, improving information security and management capabilities.
- **Improved the response speed and work efficiency** of IT departments thanks to batch duplication and rapid provisioning of office desktops.
- **Improved O&M efficiency** by dynamically allocating resources and resolving over 95% issues on the cloud platform.



## Muji: Agile, Efficient IT System



*Muji is a Japanese-owned enterprise. Its main products are daily necessities, including food, furniture, clothing, etc. It developed rapidly and planned to increase to 300+ stores in China by the end of 2015.*

### Challenges

- Time-consuming inventory accounting and final checkout (30+ hours) at the end of each month by using the existing EAS IT management system
- Overloaded service system and limited capacity (about 300 GB) of the service database when the data volume will rise to 800+ GB by the end of 2015 with an estimated increase in the data volume of 30+ GB per month and in the number of stores from 120+ to 300+

### Huawei Solution

- Used the FusionCube hyper-converged infrastructure to reconstruct the IT system, used SSD cards as the primary storage, and used NVDIMMs as the cache, ensuring high IOPS and low processing latency of the storage system.
- Used 56 Gbit/s IB NICs for communication between underlying storage, physically isolated the storage plane from the service plane, and provided 10GE bandwidth between servers, avoiding a performance bottleneck caused by the storage network.

### Customer Benefits

- Improved system processing performance by 7 times, and shortened the business settlement time.
- Offered a simple, agile, efficient IT system capable of smooth expansion and integration with other service systems, based on a unified IT hardware cloud platform.

# Changchun Automotive Economic-Technological Development Area: Cloud Infrastructure Platform



Changchun Automotive Economic-Technological Development Area, a national development zone approved by the State Council of China, is primarily responsible for speeding up construction of Changchun's international motor city and western urban district, and stripping social functions from First Auto Works (FAW).

## Challenges

- **Diverse IT system construction requirements** (different schedules and standards) of various subordinate departments in a newborn national development zone
- **Unable to address changing business requirements** of various subordinate departments by using the conventional IT architecture

## Huawei Solution

- Used the high-reliability, high-performance FusionCube infrastructure to offer an appliance solution, implementing unified resource pooling and unified O&M for the data center.
- Deployed the FusionStorage distributed storage software and used hard disks on servers to form storage resource pools, improving platform performance.

## Customer Benefits

- Enhanced the information management capability of the data center and improved O&M efficiency because of **unified O&M of the cloud data center**.
- Minimized labor and time arising from researches, bidding, and tender, **improved business flexibility**, and speeded up the responding of the information center thanks to rapid resource allocation based on business requirements.



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