

# Building a Cost-Effective, Scalable and Secure Infrastructure for Retail IT Innovations



The sluggish global economy, technological innovations and the adoption of omni-channel shopping have brought fundamental changes in the way in which shoppers shop. Retail CIOs have to leverage new technologies such as cloud computing, big data and mobility to holistically revamp their IT infrastructure to address the new shopping environment and compete for shoppers' attention now and in the future.

Huawei believes that the next generation of retail information and communication technology infrastructure must be connected, intelligent and visual, is determined to be a new, powerful partner helping retailers build their technology infrastructure of the future. Leveraging global best practices, Huawei's networking, security, unified communications and data center offerings can bring down the total network cost of ownership (TCO) through their high performance-price ratio, future-ready scalability, eco-friendly, energy-efficient design and pervasive security.

## Driving Forces Behind Next-generation Retail IT

The retail industry is experiencing a revolution, driven by new shopping dynamics in the digital age:

- **The well informed consumer**  
With powerful Google searches, product review websites, and the referral network of social media, shoppers are much better informed and tend to do a lot more research and price comparison online before heading to the store or purchasing through an eCommerce channel.
- **Social shopping**  
Shopping is going social-customers rely much more on recommendations from peers or friends than from “experts.” The opinion of a close friend who has firsthand experience bears substantial weight. At the same time, people are more likely explore brands on social networks and tend to favor brands that have Facebook pages and mobile websites.
- **Mobile customer base**  
With the proliferation and general availability of mobile smart devices, people are also more likely to use a mobile device to read user reviews, research products and search for nearby retail locations while shopping, or shop through a mobile app such as Amazon mobile app.

As the consumers change, so must the retail industry. 21st century retailers must address the following issues to stay competitive and relevant:

- **Connectivity**  
Retailers need to adopt an “omni-channel” strategy to allow their customers to consistently experience the brand across all channels, whether in store or online. All shopping channels need to work off the same database of products, prices, promotions and other merchandizing information. Retail stores must stay connected so that sales representatives can get up-to-the-minute product, inventory, competitive pricing and customer profile information to facilitate their interactions with the consumers, as well as easily receive training to improve their productivity and loyalty to the firm.
- **Security and privacy**  
Retailers’ storefronts and their ecommerce sites handle high volumes of highly personal and confidential data such as payment and credit card information. At the same time, credit card fraud and identity theft are on the rise. Retailers must secure customer payment and credit-card data to comply with the Payment Card Industry Data Security Standard (PCI DSS).
- **Data analytics and personalization**  
Data analytics and personalization continue to be critical success factors for the retail industry. Retailers must enhance their capability to analyze the rich data collected from loyalty programs, transaction records, and social media channels, and derive valuable insights about what consumers want and need to offer its customers a seamless and personalized shopping experience.
- **Cost minimization**  
Highly sensitive to the macroeconomic environment and volatile input cost, the retail industry is characterized by intense competition and low profit margin. Retailers must monitor its margin and minimize business expenses in order to boost their bottom line. While it is imperative to adopt the latest information technologies to revamp the business, when it comes to investing in technologies, retailers seek low Total Cost of Ownership (TCO) and products that can offer high value, low price point, easy maintenance and energy efficiency.



## Huawei Retail Solution

As a dedicated partner in Information and Communications Technologies (ICT), Huawei designs its retail solution to provide consumers a connected, intelligent and visual shopping experience, helping retailers stay ahead of the game at an affordable cost.

### Ubiquitous Connectivity for Retail

Huawei's networking solution include a full suite of switching products for small, medium and big stores, access routers that connect stores to corporate network and data centers, and Wireless LAN (WLAN) access points and access concentrators to provide WIFI access in stores and at corporate headquarters:

#### Huawei Sx700 series switches

Huawei's enterprise switching products feature compact form-factors, high port density, an unmatched price-performance ratio and energy-efficient design to make it an ideal choice for stores of various sizes, warehouses and distribution centers. The simple design, easy installation and automatic configuration capabilities help retailers to rapidly perform network planning, set up new stores and deploy new applications with limited IT resources.

Retailers need to constantly install new types of devices such as wireless access points, network cameras and RFID readers. But AC power may not be readily available in areas of the retail store or warehouse where these devices are deployed. Huawei's access switching products support Power over Ethernet (PoE) technologies to simplify new device deployment and keep costs down.

#### Huawei AR G3 access routers

Huawei Access Routers integrate routing, switching, 3G, WLAN, voice, and security functions in one device, delivered via a multi-core CPU architecture coupled with a non-blocking switching architecture. This integrated design reduces IT footprint and simplifies network management. The high performance offered by the AR series helps to improve the end user experience, enhance mobility and reduce CapEx and OpEx.

The AR G3 is designed to provide security to stores and support IPSec, VPN gateway, stateful firewall, virtual firewall and various encryption mechanisms to protect sensitive user and payment information and help retailers achieve PCI compliance.

#### Huawei WLAN access points and access concentrators

This product family includes a series of indoor and outdoor dual band.11n access points, an appliance-based access controller, a LAN switch slot-based access controller, and various network management and planning extensions.

Leveraging Huawei's strength in wireless technologies, these products provide:

- Superior performance and coverage at a fraction of the cost.
- Significant software functionality including robust security features that are built to help retailers adopt mobile payment and pass PCI compliance.
- "Smart control" of users, groups and policies to meet the BYOD trend in the retail industry.
- Multiservice support for voice, unified communications, telepresence and cloud over wireless that retailers can leverage to build intelligent and visual retail solutions.

Huawei is also actively working on convergence of various wireless technologies such as Wi-Fi, 3G and LTE, so that users can seamlessly traverse these networks without service disruption.



## Intelligent Data Center for Retail

Retail big data analysis relies on virtualized, powerful and cloud-enabled data centers to fully utilize computing resource available to perform on-demand analysis of large amounts of structured and unstructured data. Huawei's retail data center solution consists of data center networking, storage and security offerings.

### Cloud data center networking

Huawei's data center fabric solution includes the Cloud Engine 12800 data center core switches and Cloud Engine 5800 and 6800 Top-of-Rack (TOR) switches. Together they can build a 360-Terabit non-blocking switching network platform that supports the evolution of four generations of data center servers, from GE to 10GE to 40GE and to 100GE. The Cloud Engine series can help retailers save money and increase network intelligence via these characteristics:

- Highest port density in the industry: 8\*100GE, 24\*40GE or 96\*10GE ports per slot in the first release, and unmatched switching capacity of up to 48 terabits per second.
- Super large buffer size of up to 100ms even for 100GE ports to accommodate Incast traffic generated by data centers that deploy scale-out computing and storage models such as Hadoop or Cassandra.
- Non-blocking CLOS based switching fabric that can flexibly support large throughput in both north-south and east-west direction, making it easier for retailers to implement virtual machine migration and data center disaster recovery to guarantee business continuity.
- CSS and Virtual System (VS) support that can provide any size of computing resource pool, and fine tune resource allocation granularity to increase flexibility and promote resource sharing between different retail applications.
- Green design through patented ventilation channel design and smart heat dissipation, cutting data center OpEx.

For retailers with a national or international presence, implementing an IT strategy with multiple data centers is recommended to serve stores, warehouses and distribution centers in different regions to achieve faster data access and shorter response time. In addition, when backup and recovery mechanisms are deployed across data centers, this design eliminates a single point of failure and improves data center availability.

These data centers need to be interconnected to realize the above benefits, and these interconnections can either be through leased line of local carriers or in some rare cases, through dark fiber owned by the retailer. Huawei's enterprise backbone router, NetEngine40E, can be used in both scenarios to overlay MPLS layer 2 or layer 3 based VPN on top of the fiber connection. In the case of dark fiber, a pure optical transmission solution can also be adopted to provide a private pipe between data centers at a lower equipment cost.

### Cloud data center storage

Huawei provides simple and intelligent unified storage solution to help retailer store and retrieve sales transactions, inventories, and customer profiles in a smarter and efficient way.

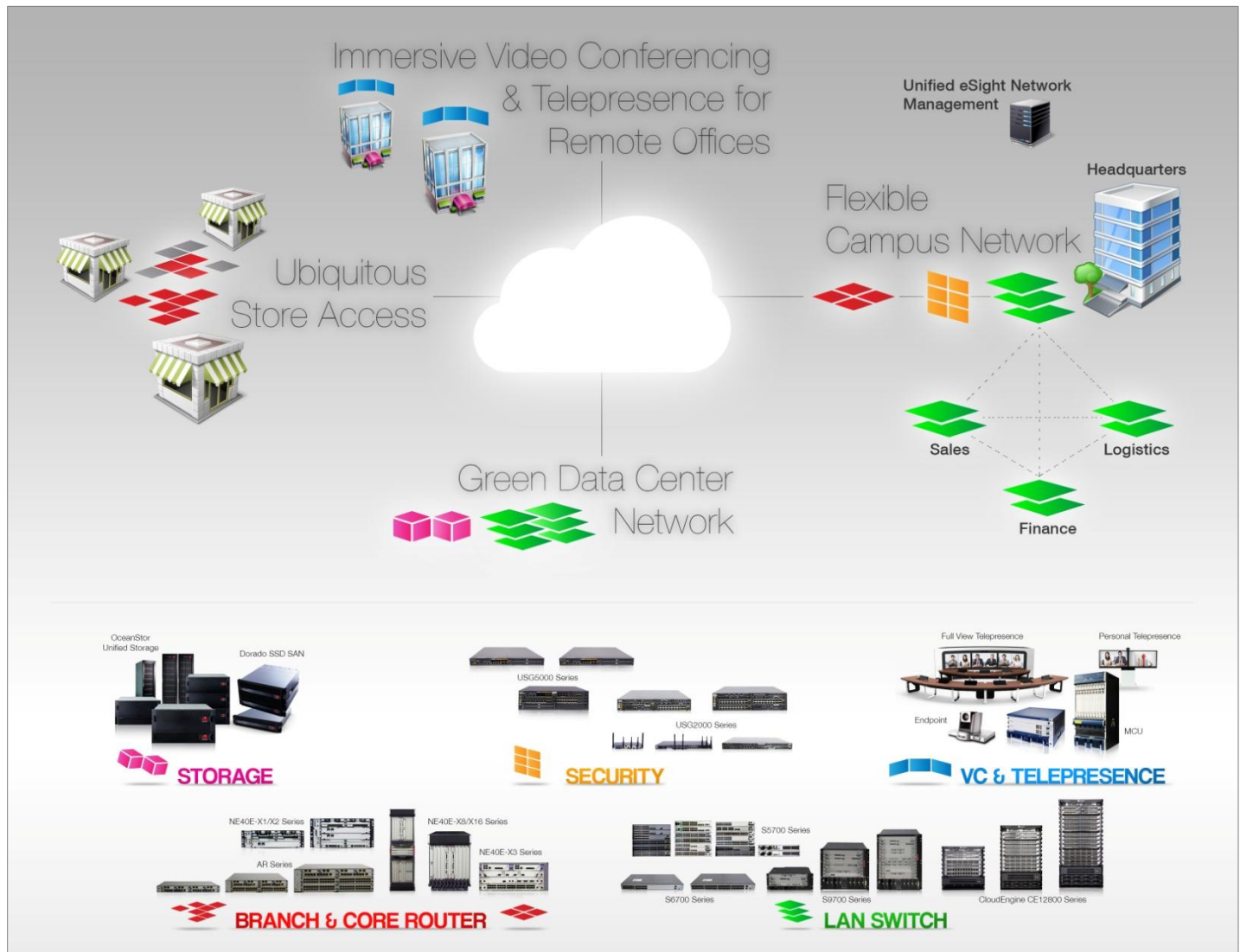
Huawei OceanStor T Series Unified Storage Systems is an advanced storage platform that supports both SAN and NAS storage requirements in a single scalable platform that also provides load balancing. With built-in intelligent resources and efficient storage features, the OceanStor T Series platform provides for all the data storage needs with flexibility, scalability and performance at an affordable price.



## Cloud data center security

Huawei's answer to cloud-enabled data center security challenges is the USG5520 Security Gateway that features performance, agility and intelligence. It features:

- High performance: 10G throughput for anti-DDoS, firewall, and IPS service processing, 2,000,000 concurrent firewall connections.
- Virtualized and dynamic security: Massive terminal access/multi-tenant isolation, with up to 4096 virtual firewalls; Customized virtual firewall policies and resources; Service-based anti-DDoS and virtualized IPS, enabling security virtualization; Virtualized IPSec, enabling secure access.
- Intelligent security: Application-based reputation defense and session-based detection; IPv4/IPv6 dual-stack defense.



## Visual Communication for Retail

Operational efficiency is a desirable core competency that sets a retailer apart from its competitors, and it requires clear communication between management and stores and across the entire supply chain. Huawei video conferencing and telepresence solutions enable the benefit of face-to-face meetings through reliable and robust networking and video technologies, greatly cutting travel risks and expenditures and improving communication efficiency. The solutions provide a wide range of interoperable endpoints, from high-end immersive telepresence systems to software video conferencing clients on mobile devices, which not only enables employees and supply chain partners to conduct video communication anywhere and anytime, but also caters to the needs and price points of all retailers.

Video conferencing and telepresence can also be used to conduct internal product and process trainings to enhance employee competency, improve customer satisfaction and gain loyalty from both shoppers and employees.

## Comprehensive Service Offerings

Huawei offers a comprehensive services portfolio that extends across the entire support lifecycle to assure retailers of their business continuity:

- Professional Services to bring new products and technologies into the IT environment seamlessly.
- Support Services to help you quickly resolve technical issues and replace hardware quickly.
- Learning Services to develop a workforce that keeps pace with technological development and convergence.

## Why Huawei

Disruptive players can change the business landscape of an industry. Retailers can adopt disruptive technologies to maintain a competitive advantage or risk losing business and lagging behind. Huawei is a disruptive ICT vendor for the retail industry because it provides products and solutions that boast high performance, scalability and security at a significantly lower price point than current solutions. We are confident that Huawei can be a new and legitimate partner to help retailers build a technology infrastructure of the future to boost both their top and bottom lines.

## Contact us for more information



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