

OceanConnect

Cloud IoT for the future

OceanConnect funnels cloud and IoT into industry enablement suites that take business domains like IoU, Smart Homes, and public utilities to the next level.

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Large-scale IoT deployment is accelerating, with IDC predicting 28.1 billion IoT connections across the globe by 2020. Industry players face numerous challenges with making these connections and extracting value from them.

Business challenges: New service deployment lags behind market development due to the complex customer decision-making process for IoT projects, high project costs, and long project cycles.

Integration challenges: Since most IoT devices are power-sensitive with rigid demands on power-saving and security, integrating devices and networks/platforms is a long, tough process for southbound device manufacturers.

Deployment challenges: Service development is difficult for application developers and system integrators due to competition and the diversity and complexity of cross-industry technologies. It's also hard to develop integrated deployment capabilities.

Ecosystem challenges: For telecom operators, monetizing connections and determining how deeply to move into vertical industries are both complex issues.

To solve these challenges, Huawei's IoT cloud services focus on building capabilities that improve functionality in public cloud services, O&M, and technical enablement.

Powering IoT

Full-stack IoT

Optimal connection management:

Huawei works closely with operators to provide smarter IoT connection management services and a diverse range of services for enterprises, including customizing rules to control business risks, diagnosing SIM card status and network faults, enabling group self-management and customization of group members, delivering user self-service and support for B2B2C scenarios, and implementing automated multi-APN control for dedicated traffic billing.

Excellent device management: The powerful functions and user friendly interface of Huawei's IoT cloud services provide full device management capabilities, including device status visibility, remote configuration, remote fault location, device firmware/software upgrades, and maintenance.

Huawei also provides a series of NB-IoT integration features in conjunction with operators. They help customers make full use of NB-IoT's advantages, such as mass connectivity, high concurrency, and low power consumption, and are vital to operating large-scale NB-IoT networks. Features include data transmission delays for quasi real-time network-aware message delivery, which is 67 percent shorter than GSM; device keepalive and heartbeat-free messages to reduce application system overheads by 95 percent; and cloud-and-network collaborative low-power management that, compared to GSM, cuts peak current by 85 percent and average current by 50 percent. Moreover, network-wide information scheduling in real-time is 90 percent more efficient than on

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A single rack can manage tens of millions of users and dynamically expand resources based on loads.

traditional platforms.

Flexible, open application enablement:

To provide commercial-grade development kits for industry development, domestic and international companies perform security monitoring on code, with complete technical support safeguarding the security and reliability of industry application systems. Over 170 northbound APIs open up device management, AI, and big data capabilities and industry enablement suites for connected vehicles, public utilities, and smart life sectors to quickly incubate enterprise applications.

Secure and reliable connections

Huawei's IoT cloud services have a strict data privacy policy to ensure tenant data isolation for enterprise customers. Tenants can define storage policies themselves to prevent unauthorized access, storage, or analysis. Unique secure transmission and optimized transmission encryption via NB-IoT ensure full security using 50 percent less power, while anomaly detection on smart devices enables rapid detection and isolation.

Hybrid cloud for local global services

An open platform based on Cloud Native architecture provides customers with 99.999 percent service reliability and mass connections for up to 100 million devices based on flexible capacity expansion, distributed design, and microservices. With market conditions and regulatory requirements varying in different regions, the hybrid cloud deployment method uses Huawei public cloud plus local data centers,

which are the best choice for enterprise customers in terms of efficiency, security, and cost. With local service teams in more than 170 countries and regions, Huawei can help customers accelerate global promotion and service deployment.

Cross-industry ecosystem

Huawei's IoT cloud services help enterprise customers easily integrate devices for fast service development and rollout. Developers can use the graphical tools on Huawei Developer Zone to define and adapt data formats to achieve codeless, hour-level device integration. Huawei's IoT cloud services offer full support for 2G, 3G, 4G, and NB-IoT access, as well as mainstream IoT protocols such as LWM2M, CoAP, MQTT, Modbus, and HTTP. Dozens of mainstream chips, modules, devices, and applications from thousands of partners in multiple industries are pre-integrated into the ecosystem, offering a wealth of business options for enterprise customers.

Complete O&M

For jointly operated public clouds such as China Telecom's eCloud, Huawei mainly handles auxiliary operations, with an operations manager helping customers develop business plans and operations strategies and assuming some service operations. In solely-operated public cloud scenarios, the operations manager also handles E2E management of the IoT product lifecycle and optimizes the operations process, including product solutions and content integration. After product launch, the manager facilitates

service development on the platform and aggregates the product ecosystem, bringing in third-party partners.

IoT cloud services feature a range of security measures, including Huawei's public cloud infrastructure security, service security, and O&M security, in addition to the Huawei 24/7 monitoring center. Commercial projects supported by IoT cloud services can connect to the monitoring center. In the event of service interruptions, zero invoking exceptions, or other anomalies, the monitoring center receives service warnings, and alerts O&M personnel, who can quickly locate and solve the problem.

Huawei's IoT cloud services come with a dedicated site reliability engineering (SRE) team that handles O&M for commercial projects to ensure secure and reliable services, fast service recovery, preemptive O&M, and service requests.

Service development strategies

Integrating public utilities partners

To provide users with convenient and efficient services, Huawei works with solution partners in various fields, including gas, environmental protection, street lighting, and parking, to deeply integrate applications and create SaaS services that combine the IoT platform and industry applications. The partner then validates the IoT cloud services platform.

Joint sales with SaaS partners

After Huawei and the enterprise partner

complete solution integration, they co-market the solution on the global market and produce a solution white paper plus marketing materials that outline the joint sales business model based on SaaS. When growing its own services, the partner combines the IoT cloud services with its own services and provides both to customers. The partner also launches SaaS on Huawei's public cloud marketplace, with their applications targeting public cloud customers as separate services. By jointly promoting the integrated solutions, both sides benefit.

Successful cases

Full upgrade of China Telecom's open IoT platform

On December 18, 2017, China Telecom and Huawei released an upgraded version of China Telecom's open IoT platform. The upgraded platform optimizes connection and equipment management, helping to speed up digital transformation for industry partners. The upgraded open platform provides a variety of unique adaptation features for NB-IoT services, which helps China Telecom to realize its network's full potential and fully utilizes its full-coverage NB-IoT network, which in turn helps to drive the large-scale commercial adoption of IoT services across the sector.

Around 45 million IoT devices are connected to China Telecom's open IoT platform in six main sectors: smart gas, smart water, smart lighting, bicycles on-demand, smart home, and Internet of Cows.

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iSoftStone builds cloud-based smart solutions for environmental protection

In August 2017, Huawei launched the beta version of its OceanConnect IoT platform on Huawei public cloud. Enterprise customers can connect massive numbers of IoT devices to the IoT cloud platform with ease, enabling two-way communication between devices and the platform for collecting data and issuing commands, visually managing devices, and integrating and analyzing data.

By invoking the platform's powerful open capabilities, customers can quickly develop innovative IoT services.

iSoftStone is a Huawei Cloud partner. Based on the Huawei Cloud, the two sides will collaborate on building solutions, training personnel, and migrating applications and operations. They will also promote government and enterprise clouds and accelerate digitalization in those sectors. iSoftStone has built a cloud solution for environmental protection on Huawei's IoT platform, which it plans to use in environmental monitoring projects in Jinshan, Shanghai, and Kaifeng, Henan.

iSoftStone and Huawei are planning to set up joint labs and develop enterprise solutions. On the platform side, iSoftStone has gradually migrated its environmental protection service to Huawei's IoT cloud services using the Huawei OceanConnect IoT platform, strengthening collaboration between the development teams. iSoftStone is also working with Huawei to jointly

develop IoT services for cities, such as smart security surveillance and water utilities. For marketing, iSoftStone and Huawei will establish a joint marketing system and work collaboratively on projects.

Groupe PSA developing travel services

The European auto giant Groupe PSA is currently building its Connected Vehicle Module Platform (CVMP), which will cover 89 countries and 8 million vehicles by 2025. The CVMP project focuses on user mobility needs and new driving experiences, aiming to open up the vast potential of the IoV market for Groupe PSA and help the company achieve globalized, cross-regional deployment and O&M. CVMP's main application scenarios include online car bookings by connecting with third-party platforms, car sharing, in-car entertainment, driving habits analysis, emergency breakdown rescue, fleet management, and car resale.

Groupe PSA selected Huawei's OceanConnect IoT Platform to build the CVMP platform and provide users with innovative mobile transport services. Groupe PSA used Huawei's Cloud Family public cloud to globally deploy CVMP. The platform supports a 100 million-level IoV network and will provide cross-industry connectivity capabilities for integrating IoV, smart home, and smart city solutions, enabling integrated services for people, vehicles, and public services.

With solutions already in play and a full platform ready to enable developers, Huawei is committed to accelerating the mass commercialization of IoT to benefit all aspects of life and society as a whole. 