

# Cisco IoT Control Center – Cloud Connect

**Unleash the full potential of IoT data insights:** Experience secure, streamlined, and automated connectivity between IoT devices and cloud applications, unleashing the transformative power of cloud-based data aggregation and analytics.

Cisco® IoT Control Center – Cloud Connect is a powerful, turnkey solution that streamlines the secure deployment, onboarding, and management of wireless IoT compliant devices such as smart meters and sensors. It simplifies the process of securely enrolling these devices with limited storage capacity, enabling seamless connectivity to cloud-based IoT hubs. Popular examples of IoT cloud hubs include Amazon Web Services (AWS) IoT Core, Microsoft Azure IoT Hub, Google Cloud IoT Core, and IBM Watson IoT Platform. Cloud Connect empowers organizations to collect, offload, and aggregate critical telemetry data from distributed IoT devices, unlocking real-time analytics, AI-based insights, and data-driven innovation. By harnessing the scalability and compute power of the cloud, this integrated feature enables enterprises to fully harness their IoT deployments, optimize operations, enhance security, and drive transformative use cases through intelligent analytics and centralized device management within a unified platform.



## Cisco IoT Control Center - Cloud Connect: Conquer IoT data challenges with cloud-powered solutions

Cloud Connect, an optional add-on feature of Cisco IoT Control Center, tackles the formidable management obstacles posed by large-scale IoT deployments, including the storage constraints of many IoT devices. By centralizing telemetry data from distributed devices in the cloud, it transcends onboard storage limitations, enabling comprehensive data retention, real-time processing, robust security, and seamless vendor interoperability.

This powerful cloud-powered solution establishes secure communication between IoT devices and their cloud hub, enabling strategies like data aggregation, compression, and prioritization to optimize storage utilization on IoT devices. Furthermore, it offloads long-term storage of extensive telemetry data streams to scalable cloud or edge infrastructure, eliminating the finite storage limitations of individual devices.

With Cisco IoT Control Center and the Cloud Connect add-on, enterprises can seamlessly connect, manage, and scale IoT deployments while unlocking the boundless opportunities of

IoT data analytics. By harnessing the power of the cloud, businesses can surmount the inherent storage hurdles faced by IoT devices, extracting maximum value from their IoT investments.

Conquer IoT data challenges and unleash the transformative potential of your IoT data with Cisco IoT Control Center - Cloud Connect, for real-time insights, robust security, and unparalleled scalability through cloud-powered capabilities.

### Benefits

IoT Control Center - Cloud Connect empowers service providers to deliver enhanced enterprise customer benefits by streamlining the configuration of secure connections between IoT devices and cloud-based IoT data aggregation hubs. This powerful solution enables:

- **Seamless setup:** Establish secure communication channels from IoT devices to cloud hubs with ease, simplifying the integration process for enterprise customers.
- **Centralized cloud data aggregation:** Seamlessly consolidate and offload telemetry data streams from distributed IoT devices and edge computing nodes into a centralized, secure cloud repository, enabling comprehensive data retention, real-time analysis, and processing at scale.

- **Optimized storage utilization:** Leverage data aggregation, compression, and prioritization strategies to optimize storage usage on IoT devices, offloading long-term data storage to scalable cloud infrastructure.
- **Robust security:** Implement industry-leading security measures, including device authentication, encryption, and access control policies, helping ensure the confidentiality and integrity of IoT data and communications.
- **Simplified establishment** and setup of TLS connections between devices and IoT hubs.
- **Real-time analytics driving operational excellence:** Leverage advanced real-time analytics on the aggregated data for actionable operational insights.
- **Infinite scalability, transcending device limitations:** Overcome individual device constraints by leveraging unlimited cloud scalability for storage and processing.
- **AI-powered cloud intelligence for mobile IoT:** Enable real-time analysis and AI-driven insights from mobile IoT device data, leveraging cloud analytics and compute power.

By harnessing the power of IoT Control Center - Cloud Connect, service providers can unlock new revenue streams and deliver unparalleled value to their enterprise customers, enabling them to extract maximum insights from their IoT deployments while offering data security, scalability, and operational efficiency.

## The IoT revolution and its transformative potential

The Internet of Things (IoT) is revolutionizing enterprises with an array of connected devices like smart meters and traffic management systems. These devices unlock transformative opportunities—driving operational efficiencies, spawning new revenue streams, enhancing customer experiences, and optimizing resource management through real-time data insights.

### Overcoming IoT management challenges

However, realizing the full potential of IoT necessitates overcoming significant management hurdles. First, the sheer scale and complexity of large-scale IoT deployments, often spanning millions of distributed devices, demand robust management platforms and processes.

### The unique challenges of IoT devices

Second, the critical nature of IoT devices in sectors like utilities and transportation poses unique challenges arising from their inherent storage constraints, which limit their ability to capture and retain valuable, comprehensive telemetry and operational data. These IoT device management challenges include:

- **Storage capacity limitations:** Cost, size, and power restrictions severely curtail the onboard storage of IoT devices, significantly limiting the telemetry data that can be stored locally.
- **Data retention obstacles:** Finite storage forces IoT devices to overwrite or purge historical data, impeding long-term analysis, troubleshooting, and trend identification.
- **Real-time processing barriers:** Applications requiring real-time processing of telemetry data become infeasible if data must first be stored locally, diminishing edge analytics capabilities.
- **Security vulnerabilities:** Storing sensitive telemetry data on devices without robust encryption and access controls raises potential security risks.

- **Device interoperability:** IoT ecosystems often involve devices from multiple vendors, necessitating seamless interoperability and integration to unlock their full potential.

## Seamless, secure connectivity for IoT devices

Cloud Connect is an optional turnkey add-on for Cisco's IoT Control Center, streamlining the secure connection between IoT devices and IoT hubs. IoT devices, designed with robust security features from the ground up, are equipped with SIMs embedded with an applet (IoT SAFE) that stores authentication information, enabling secure identification, data integrity protection, and encrypted connections with IoT hubs. IoT SAFE devices are Internet of Things (IoT) devices that are designed with security, accountability, flexibility, and environmental consideration in mind to promote safe and responsible use of IoT technologies.

**Overcoming the storage limitations of IoT devices:** While IoT SAFE devices offer enhanced security, they have limited storage capacity, necessitating the offload of telemetry data to IoT hubs for enterprise analysis and insights. Cloud Connect bridges this gap, allowing enterprises to seamlessly transmit data to back-end cloud applications.

**Centralized authentication and secure onboarding:** With IoT Cloud Connect, enterprises can centrally manage all authentication elements for IoT devices, including certificates, certificate authorities, and security policies. When a new IoT device is powered on, it automatically connects to IoT Control Center, which provisions the device with the necessary authentication credentials. Armed with these credentials, the device can then securely connect to the designated IoT hub, seamlessly offloading its telemetry data stream.

**Streamlining secure IoT device connectivity:** Connecting an IoT device to a remote IoT hub requires establishing secure communication, such as TLS encryption, to protect proprietary data. Traditionally, provisioning individual SIM cards and configuring them securely for each device has been a cumbersome, error-prone, and time-consuming process. IoT Cloud Connect simplifies this secure onboarding and connection process, empowering enterprises to efficiently deploy IoT devices at scale while maintaining robust security, centralized management, and end-to-end visibility across their IoT ecosystems.

The figures below outline the high-level initial setup and ongoing zero-touch provisioning process.

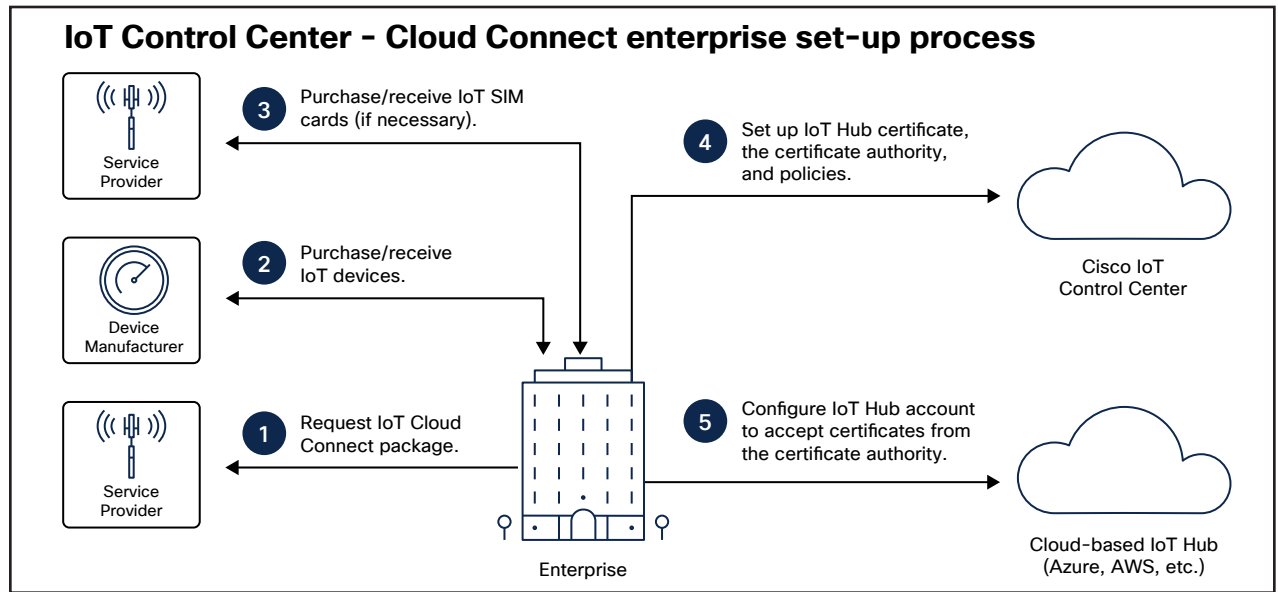


Figure 1. High-level initial setup for IoT Cloud Connect

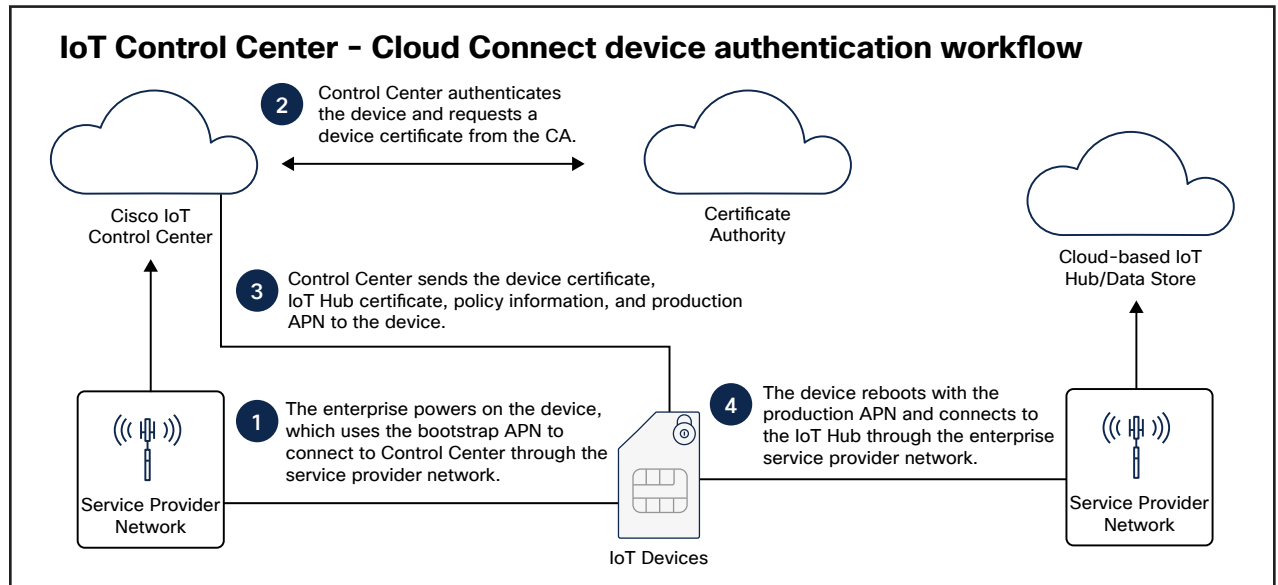


Figure 2. Ongoing zero-touch provisioning process

## Use cases

IoT devices, such as smart meters, have become invaluable assets across diverse industries due to their role in enabling the secure collection, transmission, and management of critical data streams. These robust and secure devices find numerous applications, driving operational efficiency, sustainability, and informed decision-making. However, IoT devices often have limited storage space, necessitating the offloading of data.

Cisco IoT Control Center - Cloud Connect empowers customers to securely capture and centrally manage the valuable telemetry data from IoT devices, enabling informed decision-making, optimized operations, and data-driven innovation across industries. The following table describes key industry use cases.

Table 1. Industry use cases

Industry application	Use case description
Energy management and utilities	Smart meters securely capture real-time data on energy consumption, enabling utilities to optimize distribution, detect anomalies, and offer tailored services such as demand response programs.
Smart cities	IoT devices like smart meters gather data on consumption of utilities (e.g., electricity, water, gas), providing insights for urban planners to enhance resource allocation, reduce waste, and promote sustainability.
Industrial IoT (IIoT)	Industrial meters securely monitor parameters like temperature, pressure, and flow rates, generating data for optimizing manufacturing processes, improving equipment efficiency, and helping ensure regulatory compliance.
Healthcare	IoT SAFE-enabled medical devices capture sensitive patient data for remote monitoring, medication adherence tracking, and asset management, helping ensure data security and compliance with healthcare regulations.
Agriculture	Smart agricultural sensors securely collect data on soil moisture, weather conditions, and crop health, empowering farmers to optimize irrigation, fertilization, and pest control practices for increased yields and resource efficiency.

Industry application	Use case description
Transportation and logistics	Asset-tracking sensors capture real-time data on the location and condition of goods during transit, enabling efficient supply chain management, inventory optimization, and loss prevention.
Environmental monitoring	IoT devices for environmental monitoring gather data on air quality, water quality, and wildlife movement, providing researchers and environmental agencies with valuable insights into hazards and enabling them to protect systems and public health.

## The Cisco advantage: Benefit from the experience of the global market leader

Cisco IoT Control Center - Cloud Connect uniquely provides a secure, scalable, and cloud-connected platform purpose-built for managing large-scale deployments of smart meters and IoT devices, leveraging Cisco's zero-trust security approach, edge computing capabilities, and seamless integration with Cisco's broader networking and IoT ecosystem.

Cloud Connect's capabilities augment our existing lifecycle management capabilities as well as our SIM capabilities to deliver a fully integrated zero-touch provisioning solution for IoT devices.

Cisco IoT Control Center stands as the market leader in connectivity management platforms. Our global experience, unparalleled reach, and proven track record of success are truly unmatched. We connect more devices and connected cars than any other platform worldwide. With our unrivaled scale and reach, we possess the most comprehensive understanding of the market and your unique needs.

From the intricate complexity of connected cars to the massive scale of smart meter deployments, Cisco has empowered over 300 million connected devices across over 50 Communication Service Providers (CSPs) and 32,000 businesses across every industry to build and scale their IoT businesses.

At Cisco, we are relentlessly innovating to solve tomorrow's IoT challenges today, giving you a competitive edge by enabling you to focus on what matters most—driving growth and success for your business.

With our deep expertise, cutting-edge solutions, and unwavering commitment to innovation, Cisco IoT Control Center is your trusted partner for navigating the ever-evolving IoT landscape. We equip you with the tools, insights, and support you need to stay ahead of the curve, seize new opportunities, and unlock the full potential of IoT for your organization.



## Unleash the power of your IoT ecosystem with Cisco IoT Control Center

Harness the full potential of your IoT ecosystem with Cisco IoT Control Center. Our comprehensive solution empowers you to streamline IoT device lifecycle management, fortify security, and gain unprecedented visibility—all at an unrivaled scale.

With Cisco IoT Control Center, you can effortlessly deploy, monitor, and secure your IoT devices, helping ensure optimal performance and ironclad protection. Leveraging industry-leading security capabilities, our solution safeguards

your IoT infrastructure from emerging threats, providing you with uncompromising peace of mind.

Unlock a competitive advantage and drive innovation with confidence, backed by Cisco's proven expertise in securing and scaling IoT deployments across diverse industries and use cases. Gain end-to-end visibility, advanced security features, and seamless device management—all under one powerful platform.

To learn how Cisco IoT Control Center can propel your organization's IoT initiatives to new heights, visit <https://www.cisco.com/c/en/us/solutions/internet-of-things/iot-control-center.html>.

To learn more about Cisco's Mobility Services Platform, visit <https://www.cisco.com/c/en/us/solutions/collateral/internet-of-things/mobility-services-platform-so.html>.