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Oracle Cloud Infrastructure Internet of Things Platform

Oracle Cloud Infrastructure's next-generation Internet of Things (IoT) platform simplifies application development using real-time device data and enables generative AI insights

With tens of billions of IoT devices already in use, government entities and organizations across many industries are rapidly moving to harness their IoT data to improve operational efficiency, inform strategic planning, manage costs, enhance customer experiences, and identify opportunities for new business models and revenue streams.

Oracle Cloud Infrastructure (OCI) Internet of Things Platform enables enterprise developers and solution providers to streamline the integration of real-time data from devices and other connected assets into business processes, applications, and solutions. The scalable, low-latency PaaS ingests real-time device data, creates a normalized representation, and makes the data available in Oracle Autonomous AI Database, where you can leverage a unique feature set and other OCI services to build rich, AI-driven applications.

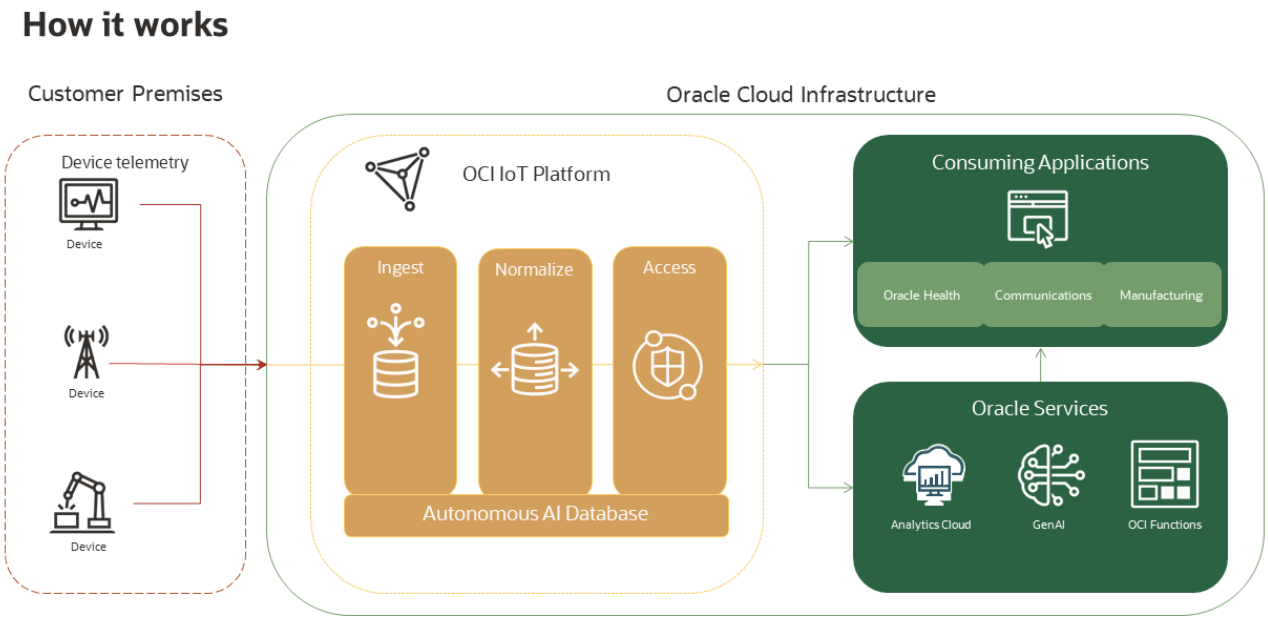

Figure 1. How OCI IoT Platform works

Device telemetry flows into OCI IoT Platform where it is normalized and made available to applications.

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Build AI solutions with IoT data

OCI IoT Platform streams device data directly into Oracle Autonomous AI Database, enabling you to use your preferred tools, including Java and Python, as well as low-code tools, such as Oracle Visual Builder and Oracle APEX, to build applications that seamlessly integrate real-time IoT data. With it, you can leverage Autonomous AI Database's features, including the following:

- Oracle AI Vector Search to quickly identify patterns and anomalies
- Integrated LLMs to extract insights, summarize results, and generate contextual responses
- Retrieval-augmented generation (RAG) to produce results blending LLMs with private device data

Additionally, being native to Oracle Cloud Infrastructure, OCI IoT Platform offers integration into existing OCI services, such as the following:

- Oracle Cloud Infrastructure (OCI) Functions for transformation, filtering, and enrichment
- Oracle Cloud Infrastructure (OCI) Anomaly Detection
- Oracle Analytics to extract insights and forecasts for decision-making
- Oracle Integration for connecting to business applications and processes

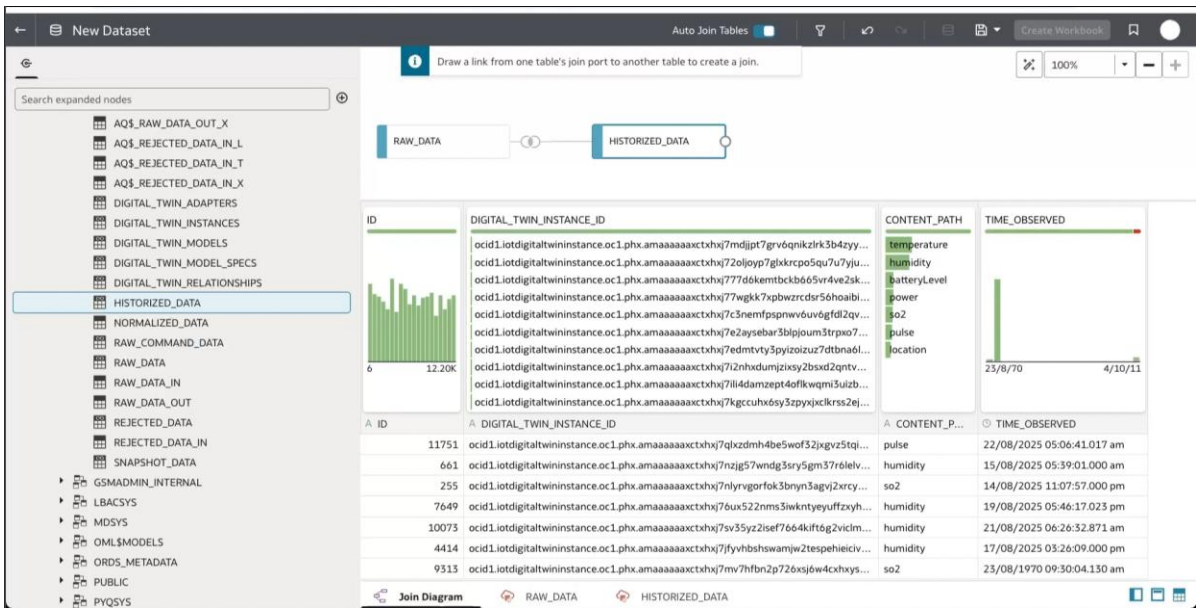

Figure 2. Oracle Analytics Cloud with IoT data

Using the OCI command-line interface (CLI), you can define and configure digital twins of entities in the physical world using Digital Twins Definition Language (DTDL), an open source standard developed by Microsoft.

Leverage Oracle Autonomous AI Database

OCI IoT Platform is built on Oracle Autonomous AI Database. Your IoT device data is persisted and seamlessly managed directly within the database. This means your data benefits from continuous backups, automated performance tuning, and the comprehensive suite of Oracle Database features—including AI, security, high availability, and scalability. Applications can interact directly with your device data in the database at rest or streamed via Advanced Queues, eliminating the need for complex ETL processes from external object stores while enabling

real-time analytics, AI-driven insights, and rapid application development with confidence in your data integrity and reliability.

Comprehensive data integration via digital twins

Digital twin definitions include interfaces, data formats, adapters, commands, and relationships between digital twins. Depending on the digital twin definition, telemetry data received by OCI IoT Platform is automatically normalized and stored in Oracle Autonomous AI Database, allowing applications to be built on generalized data representations, insulated from device-specific data representations.

OCI IoT Platform includes Oracle APEX and Oracle REST Data Services, enabling low-code development of applications on IoT data and direct access to your IoT data via REST. Telemetry is accepted via secure MQTT, REST over HTTPs, and MQTT over WebSockets.

Sense and control

With OCI IoT Platform, you can build rich, AI-powered applications that leverage real-time device data ingested and processed within the platform. By integrating advanced analytics and machine learning, you transform raw sensor inputs into actionable insights, driving smarter business decisions. In addition, you can enable secure, bidirectional communication to effectively send commands and configurations back to your on-premises devices—delivering adaptive responses to dynamic operational needs.

Summary

OCI IoT Platform provides a robust, scalable, and secure foundation for your connected device initiatives. Delivering integrated data normalization and built on Oracle Autonomous AI Database, which allows seamless connectivity to the broader OCI ecosystem, you can accelerate innovation and drive business value from your IoT deployments. With access to the advanced AI capabilities of many OCI services, you can automatically analyze and extract actionable insights from IoT data at scale and enable smarter, real-time decision-making with minimal manual intervention.

For more information

OCI IoT Platform

Documentation

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