IoT Platforms

Credit

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IoT Platforms

- An IoT platform is a multi-layer technology that enables straightforward provisioning, management and automation of connected devices with Internet of Things universe.
- It fills the gap between the hardware and the application.
- IoT platform provides a set of ready-to-use features for developers, which speeds up the development and provides cross device compatibility.

- Basically, IoT platform was originated in the form of IoT middleware.
- The primary task of this IoT middleware was to provide a link between the hardware and application layers.
- An IoT platform operates in a multi-layer infrastructure that transfers and handles the information via internet.


APPLICATION
Data storage/analytics
Consumer application
Industrial application
Business application
Your application
MIDDLEWARE
IOT PLATFORM
HARDWARE
Mobility
Tags/beacons
Sensors
Health and fitness devices
Consumer electronics
Automotive
Embedded hardware

- Some advantages of IoT platforms are scalability, customizability and security.
- Advanced IoT platform assures elastic scalability across client requirements.
- It is too customizable and has speed delivery, API integrated, transparency of source code.
- It also offers end-to-end encryption including data at rest, device authentication, user ID management and private cloud infrastructure.

- Last year, the global IoT platform market size was around 2.26 Billion USD and is expected to hit 13 Billion USD by the end of 2026.

- The number of IoT devices increases year-over-year by 31 percent.

- IoT platforms have a great potential and future market.

Top IoT platforms

#1) Microsoft Azure IoT Suite

It is one of the topmost IoT platforms and products of Microsoft which is made to deliver scalable service, application service, messaging facility, data storage services, and efficient databases.

Microsoft has committed to invest $5 billion in IoT research and intelligent edge, adding new features to Azure IoT.

Features

· Provides robust application.

· Ensures the security of Microsoft

· Easy to use for beginners

· Device Shadowing

· Provides a great platform for developers

Website: Microsoft Azure IoT Suite

#2) Amazon Web Services IoT Core

- AWS IoT core is a managed cloud service. It allows devices to interact with cloud applications.
- It provides support for HTTP, lightweight communication protocol and MQTT.
- AWS IoT core can support trillions of messages and processes those messages to AWS endpoint securely and reliably.
- Some esteemed organizations use AWS to build, host and manage their infrastructure.

Features

· It can process huge volume of data

· It provides a reliable and secure platform for message transfer from one device to other.

· The devices will be tracked and communicated even if they are not connected.

· You can use other AWS services like AWS Lambda, Amazon Kinesis, Amazon S3, Amazon SageMaker, Amazon DynamoDB, Amazon CloudWatch, AWS CloudTrail, Amazon QuickSight, and Alexa Voice Service

Website: Amazon Web Services IoT Core

#3) Google Cloud Platform

Google cloud platform is the third largest IoT platform that provides a solution for IoT devices and applications.

It handles a large amount of data using Cloud IoT Core by connecting various devices.

It allows to apply BigQuery analysis or to apply Machine learning on this data.

It helps in improving operational efficiency. It provides predictive maintenance for equipment, real-time asset tracking, Logistics & supply chain management and smart cities and buildings.

Its basic products are:

IoT core: A fully managed service to easily and securely connect, manage, and ingest data from globally dispersed devices.
Edge TPU: Google's purpose-built ASIC designed to run inference at the edge.
Features:
· It provides edge computing with machine learning capabilities.
· Accelerate business agility and decision making IoT data
· Improve operational efficiency
· Speed up IoT devices
· Enhances the IoT solution with location intelligence powered by google maps.
Website: Google Cloud Platform

#4) ThingWorx


People
Systems
ThingWorx
A PTC Business
Connected Applications
Connected Operations
Connected Products

- It is a widely used platform which was acquired by PTC in 2013.
- It provides flexibility to access data from the hybrid environment.
- It gives us increased uptime, reduced costs, role-based visibility and improved compliance.
- It is mainly used for application developers for easy execution and rapid data management.

Features

· It helps in analyzing complicated data.

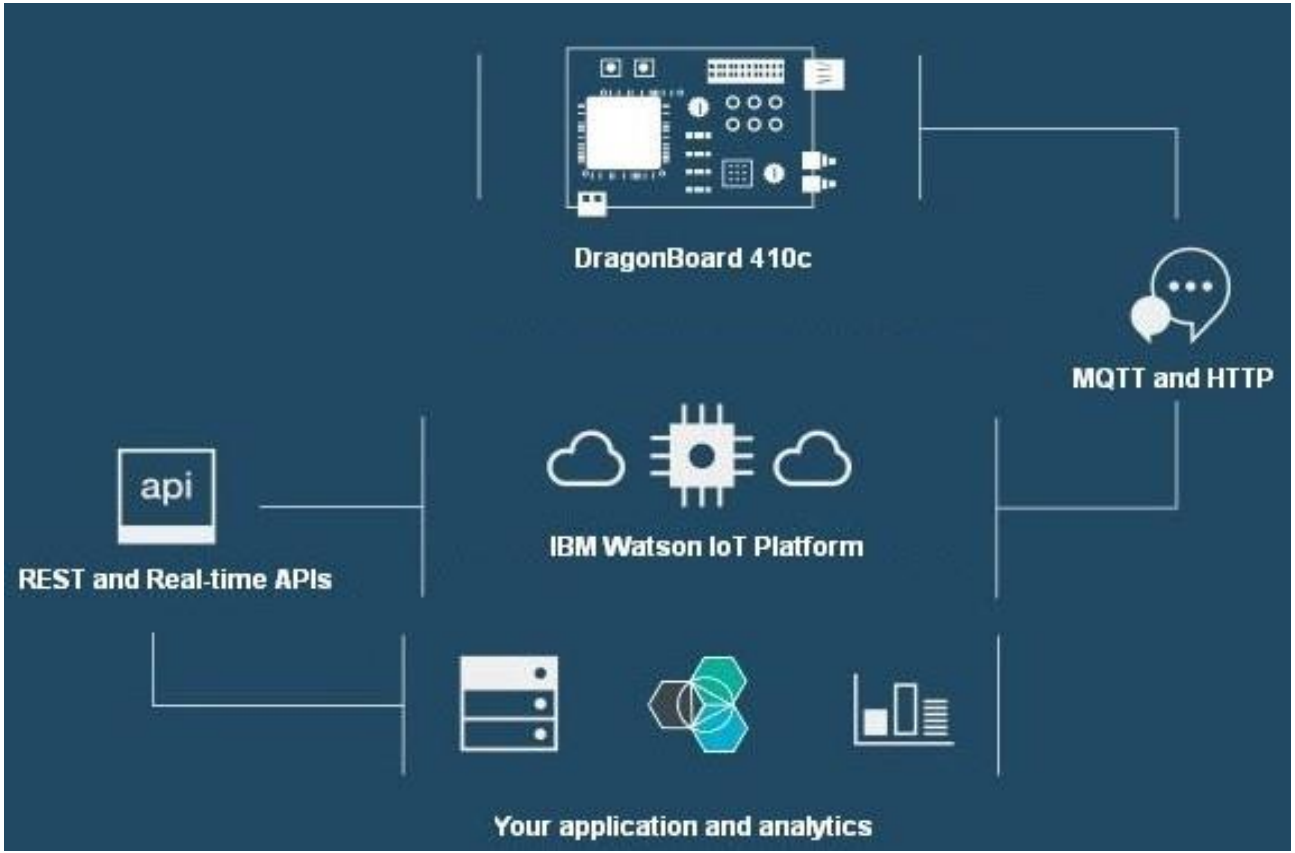
· Build and apply effective and easy solutions.

· Data accessible from hybrid ecosystems.

· Can easily create industrial IoT applications.

Website: ThingWorx

#5) IBM Watson Internet of Things



- IBM Watson IoT helps to compare and investigate the data for devices, machines and find out the understandings for better decisions.
- It offers multiple choices using the IoT platform for Machine Learning and Artificial Intelligence.
- It allows us to optimize resources and helps to increase the revenue to a greater extent by providing the correct business insights and bidirectional communication facility.

Features

· Apply the AI to the data

· Device management

· Real-time data exchange

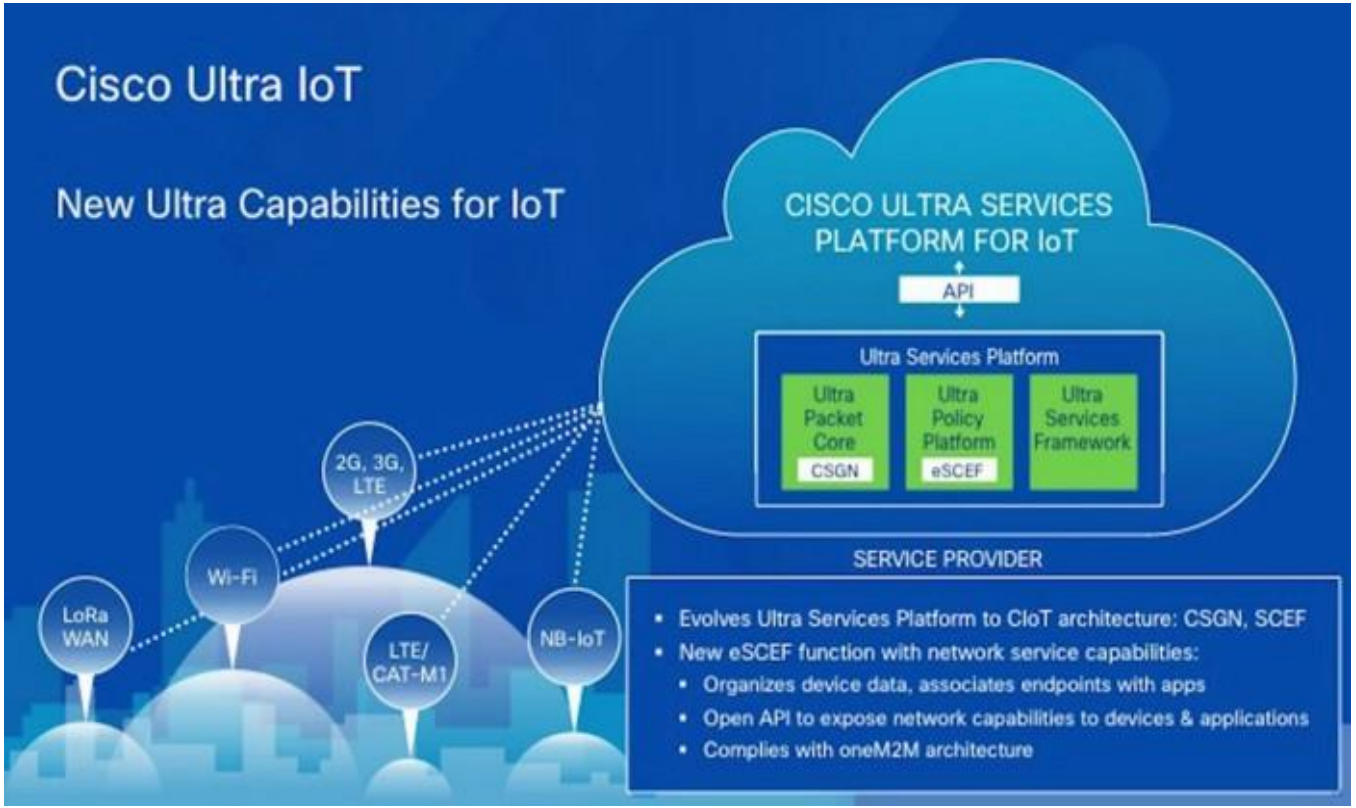
· Open and flexible solutions

· Trusted security and privacy

· Deep growth and transformation

Website: IBM Watson IoT

#6) Cisco IoT Cloud Connect



- Cisco Internet of Things (IoT) Cloud Connect is new mobility-cloud-based software suite.
- It offers a complete solution for mobile operators to provide exceptional IoT experiences.
- Cisco IoT Cloud Connect helps you find new ways to make money, while fully optimizing and utilizing your networks.
- It provides services with effective data and voice connectivity, reliable SIM lifecycle, proficient IP session control, and customizable billing system.

Features

· Provides granular and real-time visibility

· Provide updates across every level of a network

· In case of security, it protects the system from various human error and attacks, malwares and intrusion.

Website: Cisco IoT Cloud Connect

#7) Oracle Internet Of Things

- Oracle IoT platform provides the ability to develop new applications and use them for commercial purpose.
- It ready-to-use SaaS solutions for remote asset management, smart manufacturing and safety monitoring.
- Built-in-integrations and extensibility features enables you to extend your business applications.

Features

· It enables us to create IoT application and connect device to Javascript, Android and IOS.

· Business-Ready IoT SaaS applications

· End-To-End security

· Broad IoT Device and Protocol Support

· Built-in Machine Learning

Website: Oracle Internet Of Things

Considerations In IoT Platform Selection

- Instead of just jumping into an IoT platform, you should first sketch out your requirements.
- Figure out the user experience, data and business decision pieces of the design.
- Try to avoid the blueprint a specific device, OS, gateway, edge platform, network, communications protocol, cloud platform, or brand.
- Instead of these, design in generic terms first.

The cloud pricing is very complicated. It is hard to predict and if you rely on introductory pricing.

When you go to subscribe, you realize it’s ten times as much for the features you need.

It is easy to neglect the cost of data storage and hard to implement a long-term strategy for inessential data.

With development, the cost of integration, and the cost of hiring consultants — you could be looking at a major expense.

Take this into consideration beforehand.

While choosing an IoT platform based on your solution, keep the following points in mind:

· Connectivity

· Market coverage

· Type of service

· Area coverage

· Security

· API access

· Data access

· IoT Ecosystem

· Roadmap

· Device management

· OTA Firmware updates

Conclusion

IoT platforms are cost effective for many companies in various sectors like transport, marketing, health, agricultural, etc.

It is easy to use and the application depends on the field of usage.