



Modul

- Internet of Things (IoT) -

05 – Vorlesung IoT Plattformen

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|-----------|--|
| 21. März | Einführung in das Internet der Dinge |
| 28. März | IoT Architekturen |
| 4. April | Things und Sensoren |
| 11. April | From Device to Cloud |
| 18. April | Vorlesungsfrei – Ostern |
| 25. April | IoT Analytics |
| 02. Mai | Big Data in IoT |
| 9. Mai | Data Exploration |
| 16. Mai | IoT Plattformen |
| 23. Mai | Entwicklung einer IoT Lösung |
| 30. Mai | Vorlesungsfrei; Christi Himmelfahrt |
| 05. Juni | opt. Gastvortrag – Digitalisierung |
| 13. Juni | Data Science in IoT |
| 20. Juni | Vorlesungsfrei – Fronleichnam |
| 27. Juni | Intelligente Cloud und intelligente Edge |
| 04. Juli | PStA Abschlusspraesentationen |

PStA

10 Best IoT Platforms To Watch Out In 2019

Last Updated: April 23, 2019

An In-Depth Comparison of the Best Free Open Source
and Commercial IoT Platforms That You Should Watch

Home > DIY/Open Source Tools

Top 20 IoT Platforms in 2018



by **Santosh Singh** — March 17, 2019 in [DIY/Open Source Tools](#), [Featured](#), [Hardware Platform](#), [Top](#)

11 min read

Ultimate List of 30 IoT Platforms You Must Try in 2018

Looking for the best IoT platform to help you on your next project? Check out this post with the top 30 IoT platforms.



by **Maryna Prokopets** · Nov. 09, 18 · [IoT Zone](#) · [Presentation](#)

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- **AWS IoT**

- Native integration with the rich Amazon ecosystem
- Specific industry domain agnostic
- Magnificent scalability and customization potential

- **Google Cloud IoT**

- Supports both cloud and edge computing
- Providing reliable and secure storage of data
- Includes Cloud Machine Learning, BigQuery, and other services for storing, analyzing, and visualizing the data from your sensors
- Automatic and custom firmware updates, secure connections, etc.

- **Microsoft Azure IoT**

- Support a very large number of devices
- Excellent scalability
- Strong security
- High reliability with 99.95 percent of uptime
- Backend service integration

- **IBM Watson IoT (aka Bluemix)**

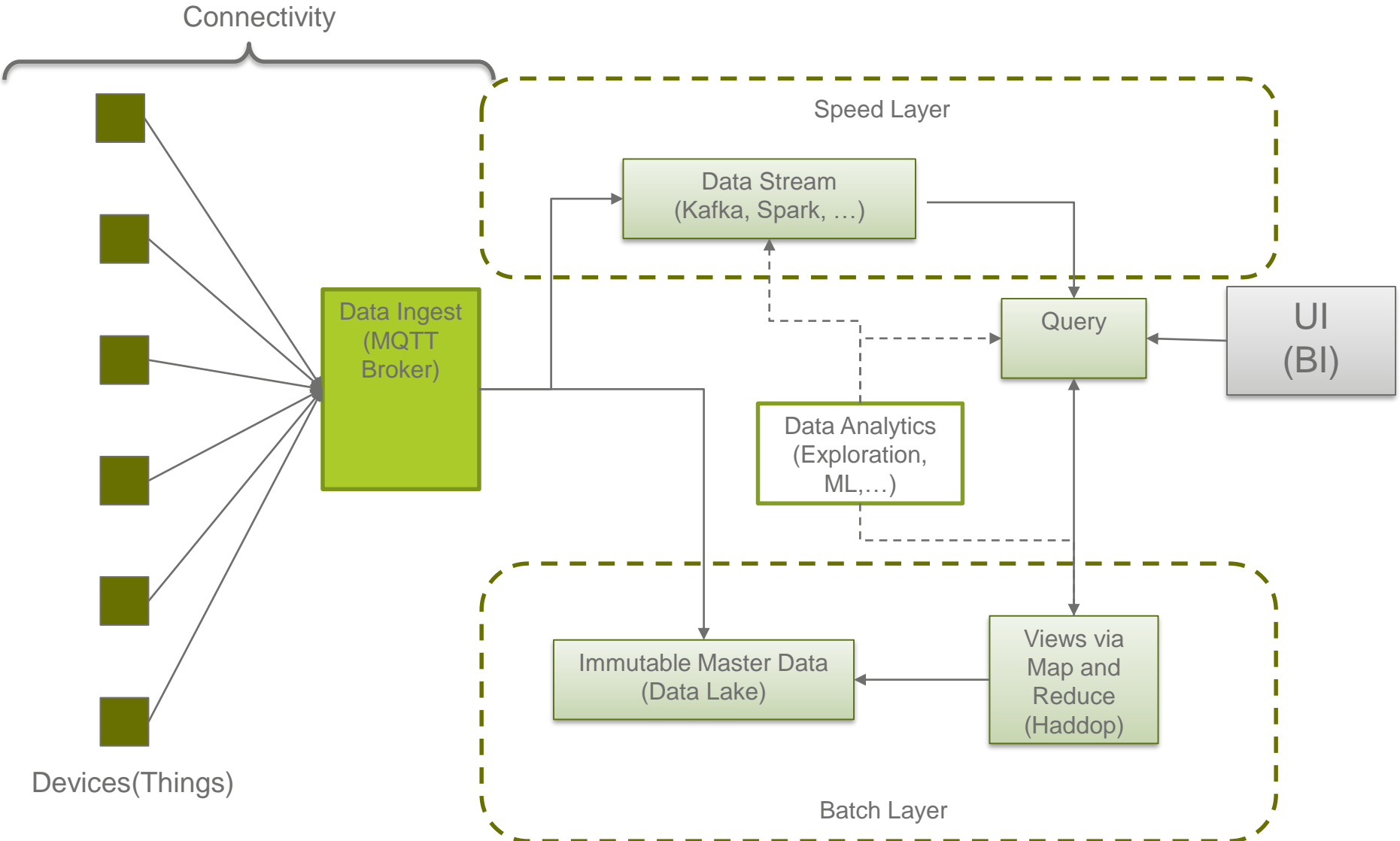
- IoT platform offers an advanced integration with machine learning capabilities
- Good support for IoT developers by providing tools for easy and fast application development

IoT Platform



- Oracle IoT
- Salesforce IoT
- **Bosch IoT**
 - Good security and reliability
 - On-line and offline storage
 - Good prototype capabilities
 - Cost-effective
- ThingsIO.AI
- **Siemens MindSphere**
 - Focuses on reducing the downtime of critical equipment
 - Scalable connectivity (cloud and edge)
 - Runs on AWS and Azure
- Ayla Networks IoT
- **GE Predix**
 - Fokus on industrial applications.
 - Good solution scale
 - It is designed to analyze and efficiently transfer huge volumes of data from assets to edge devices, cloud, etc.

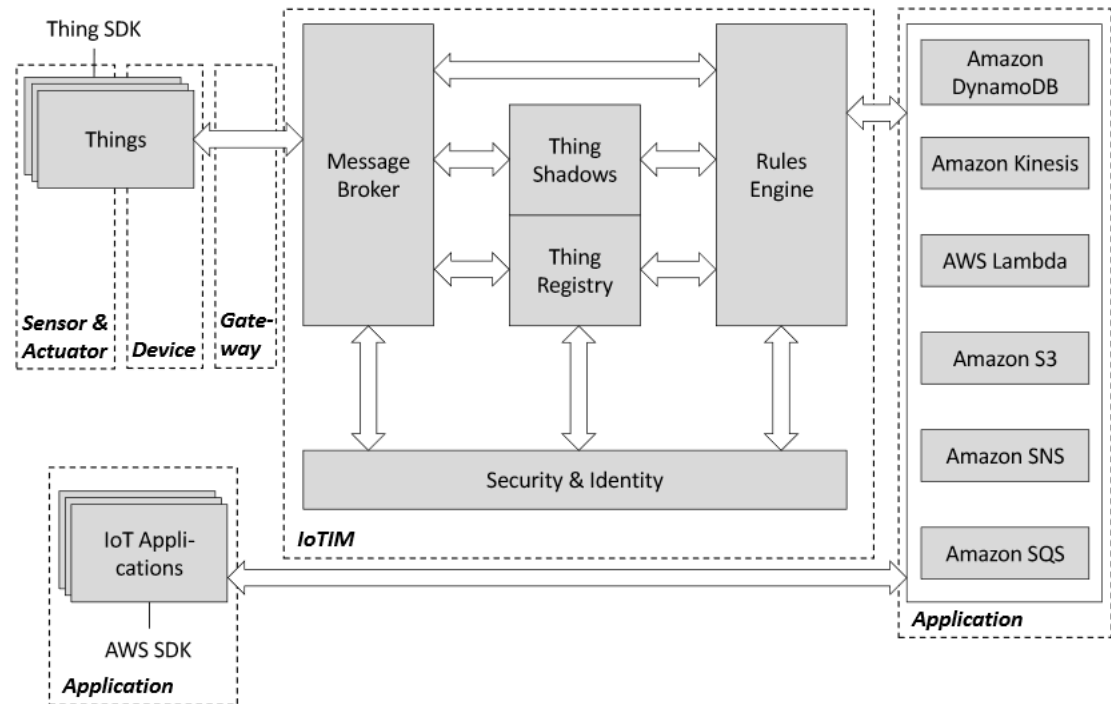
IoT Architecture (Draft)



Amazon Web Services (AWS) IoT

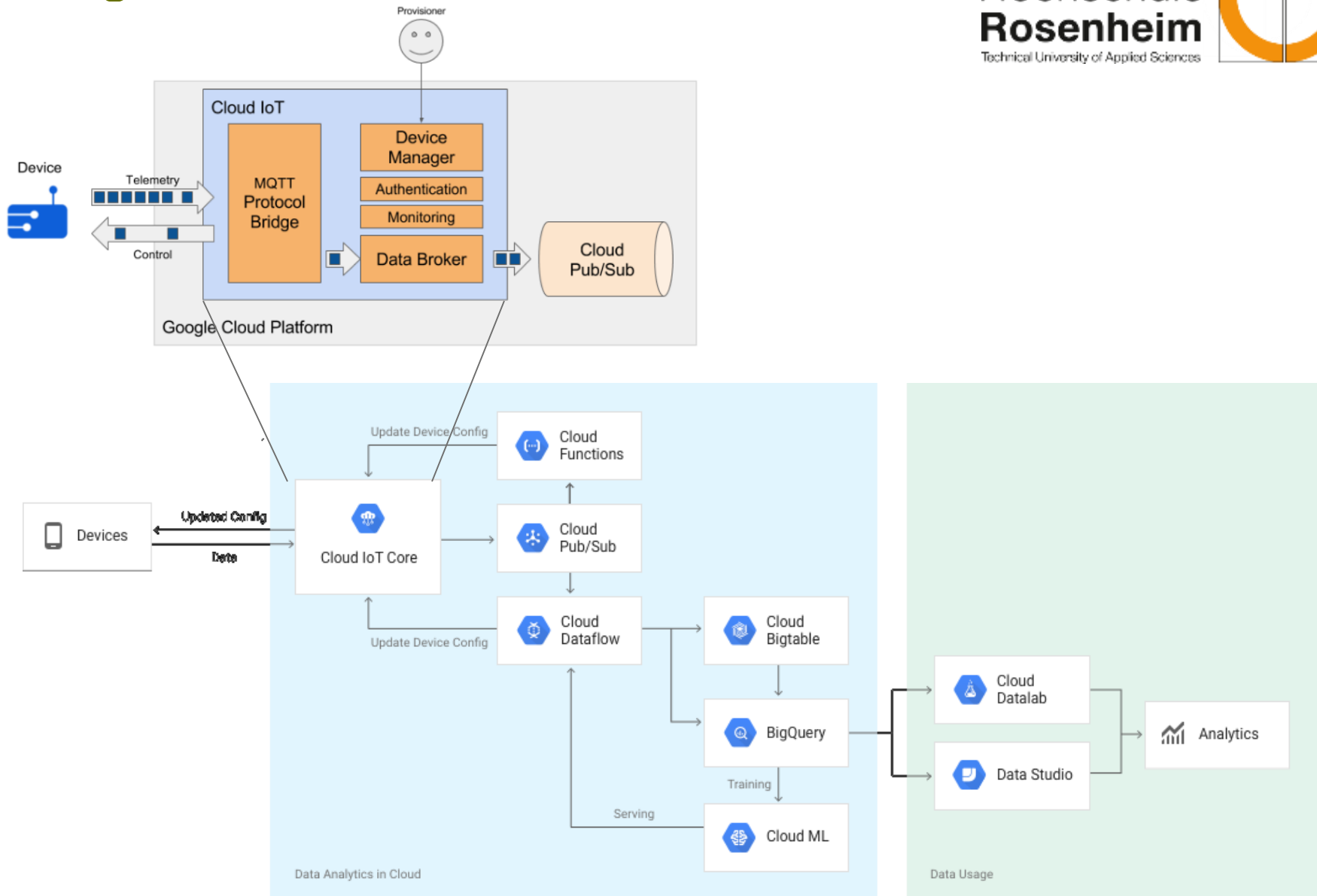
Main features of AWS IoT platform are:

- Registry for recognizing devices
- Software Development Kit for devices
- Device Shadows
- Secure Device Gateway
- Rules engine for inbound message evaluation



Source: <https://www.iaas.uni-stuttgart.de/publications/INBOOK-2018-01-A-Detailed-Analysis-of-IoT-Platform-Architectures-Concepts-Similarities-and-Differences.pdf>

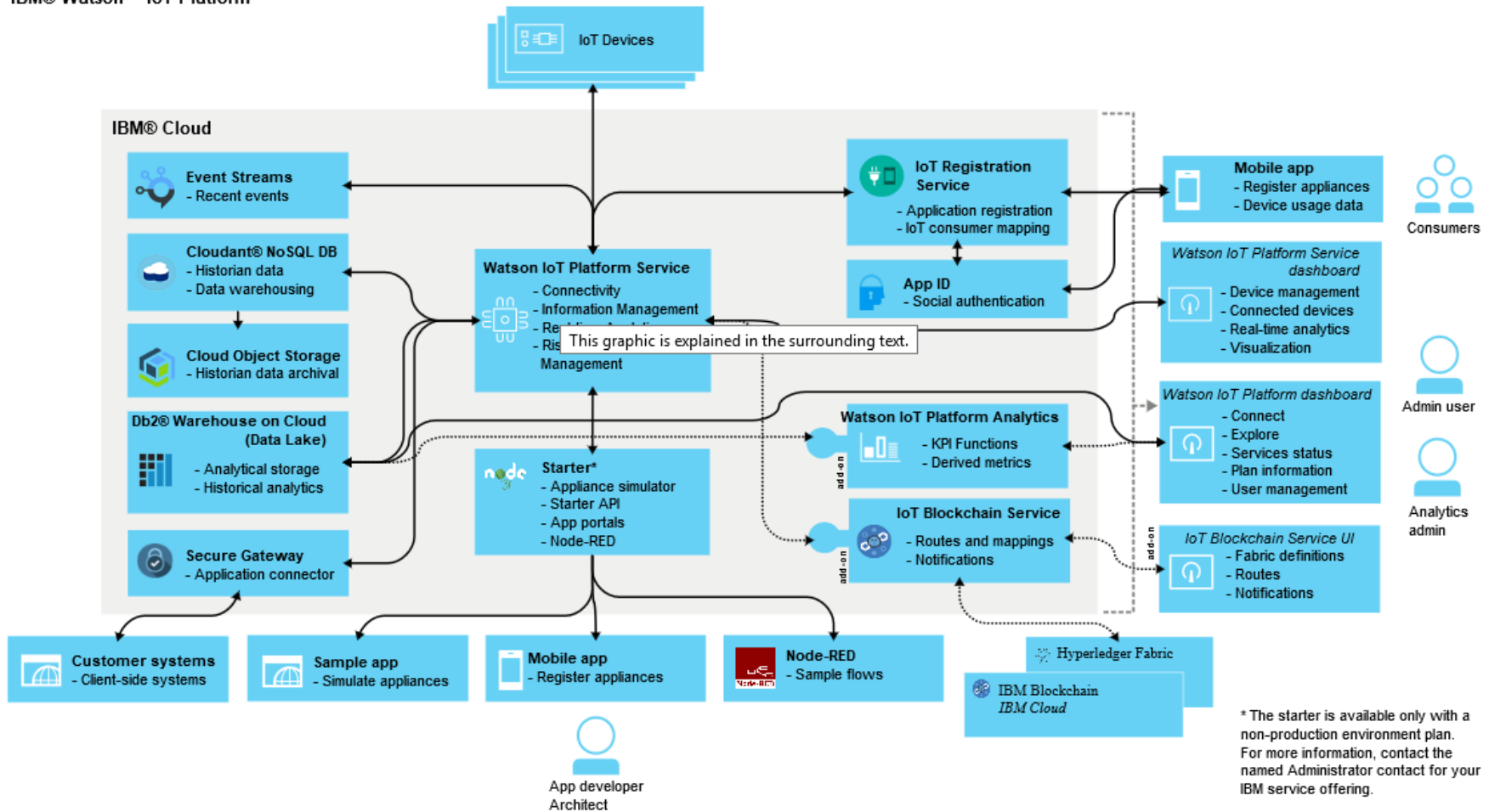
Google Cloud IoT



IBM Watson IoT

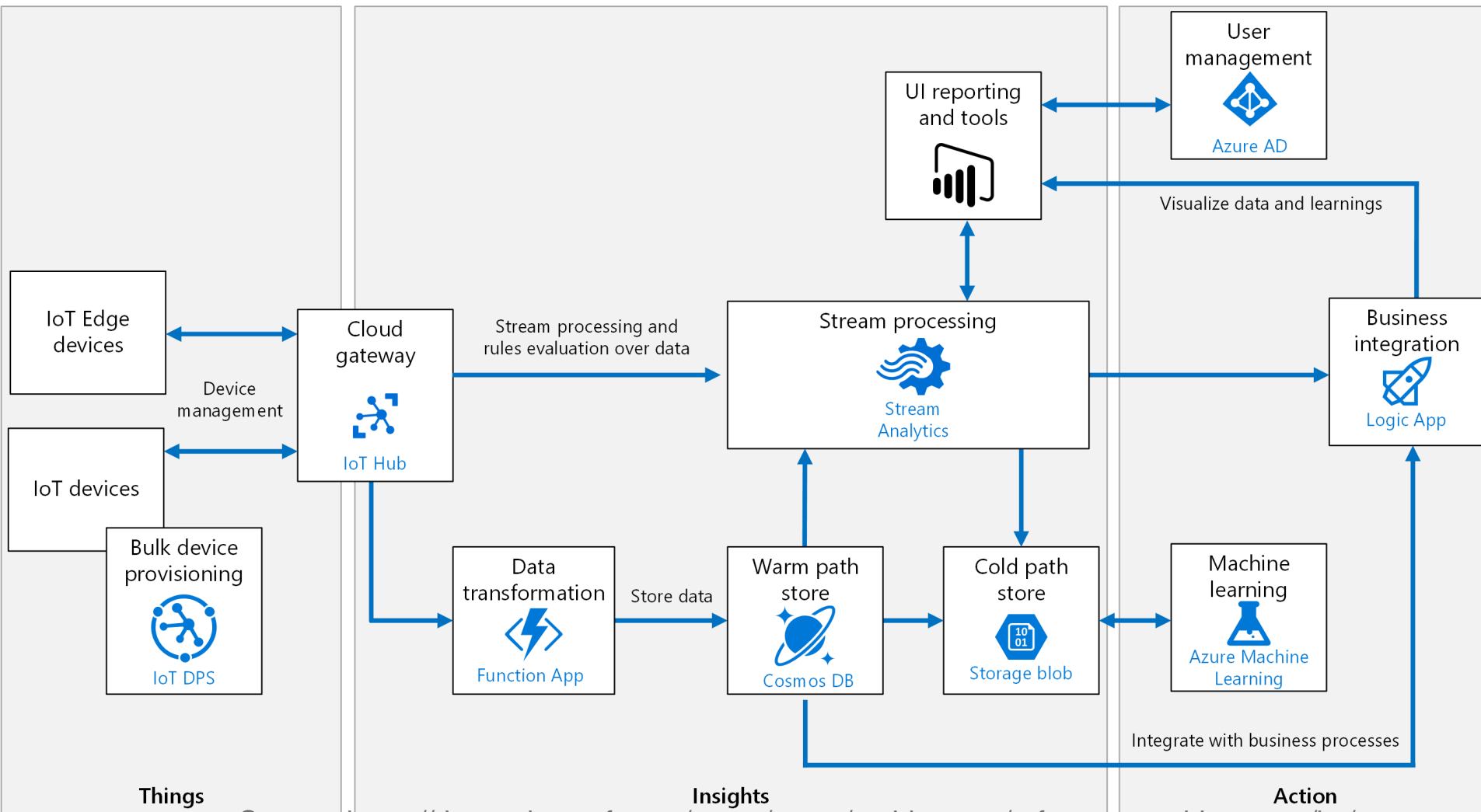


IBM® Watson™ IoT Platform



source: <https://www.ibm.com/support/knowledgecenter/en/SSQP8H/iot/overview/architecture.html>

Microsoft Azure IoT



Source: <https://docs.microsoft.com/en-us/azure/architecture/reference-architectures/iot/>

Bosch IoT Suite



Devices

Protocols

Gateway

Cloud backend



ZigBee, Z-Wave,
DECT ULE,
BluetoothLE, UPnP,
EEBUS SPINE,
EEBUS SHIP

KNX,
Modbus,
HomeConnect,
ONVIF, IP cameras

Cust. apps

JSON-RPC
REST API
WebSockets






Bosch IoT
Gateway Software

Automation engine
Device abstraction
OSGi middleware
Java-based

</> Develop


Bosch IoT
Gateway Software
SDK

Eclipse plugins
OSGi Runtime
OSGi Validator
Java-based

 **Bosch IoT**
Rollouts
 **Bosch IoT**
Remote Manager
 **Bosch IoT**
Things
 **Bosch IoT**
Hub

Java API
REST API
WebSockets

Cust. apps

Device management
Software repository
Scripting & rules engine
IoT application platform

source: <https://blog.bosch-si.com/bosch-iot-suite/release-9-1-bosch-iot-gateway-software-available-now/>

Requirements for an IoT Platform



- Device SDK
 - Protocol
 - Authentication and Security (TLS)
 - Sensors and Actuators

Thing

- Gateway
 - Protocol Support (HTTP(s), MQTT)
 - Authentication/Autorisation
 - Data Ingress
 - Device Control
 - (Device Twin)

Connectivity

- Backend
 - Data Transformation
 - Data Processing
 - Data Storage

Data

- Analytics
 - ML
 - Business Intelligence

Analytics

IoT Platform Architecture (v0.2)

Things

Connectivity

Data

Analytics

