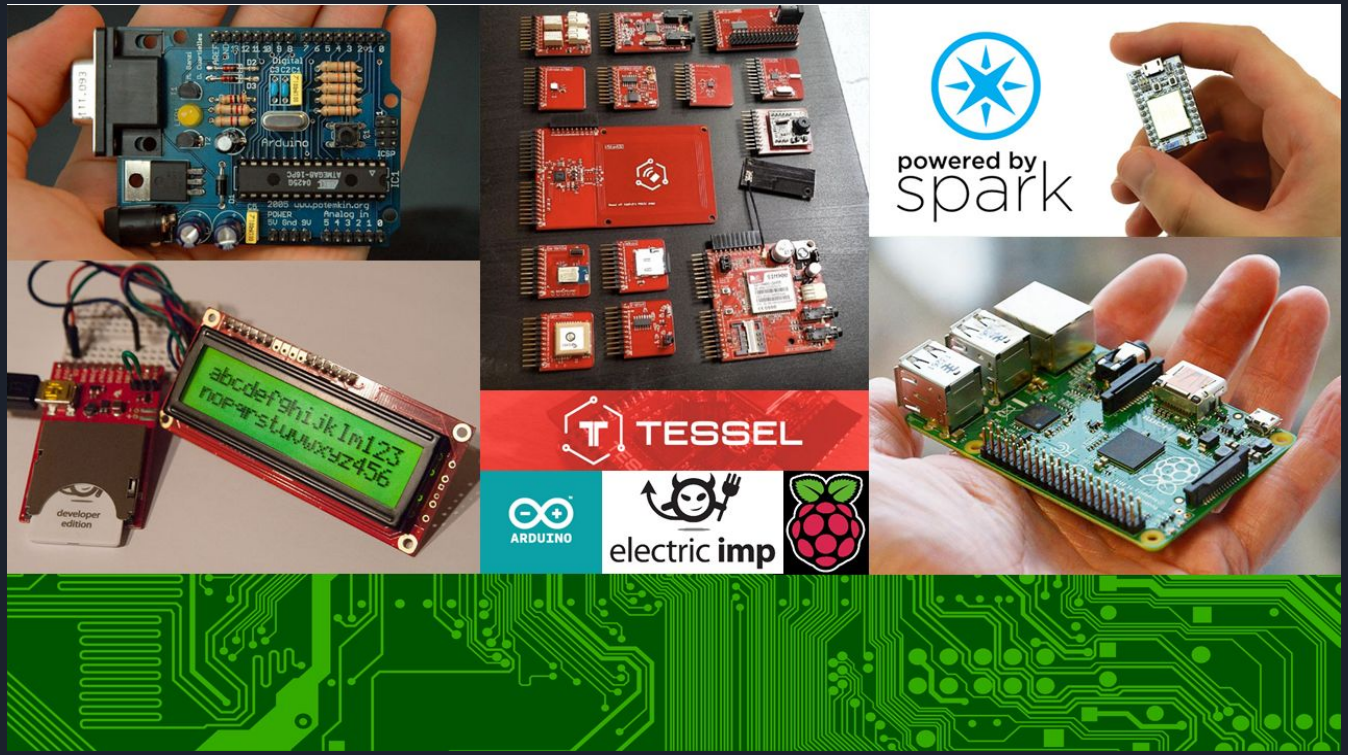
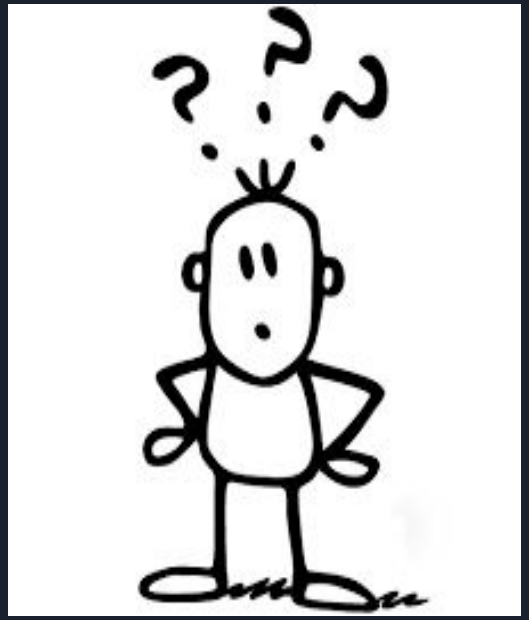
ROBOTRYST 4.0

IOT: Internet of Things



What?

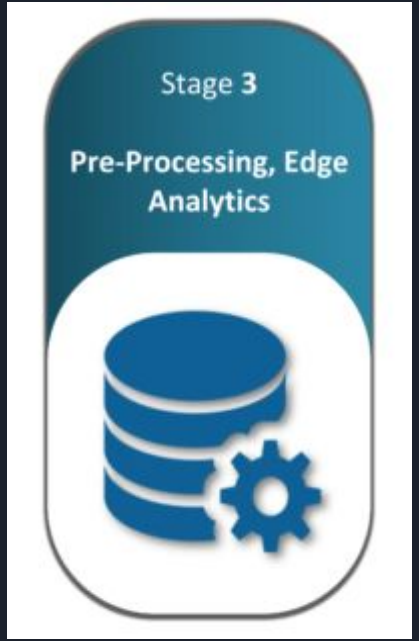
- Internet of Things is the concept of connecting any device to the Internet.
- System of interrelated computing devices.



How?

Stage 1
Sensors, Actuators, Devices etc...

Stage 2
Data Acquisition Systems


Stage 3
Pre-Processing, Edge Analytics

Stage 4
Cloud Analytics

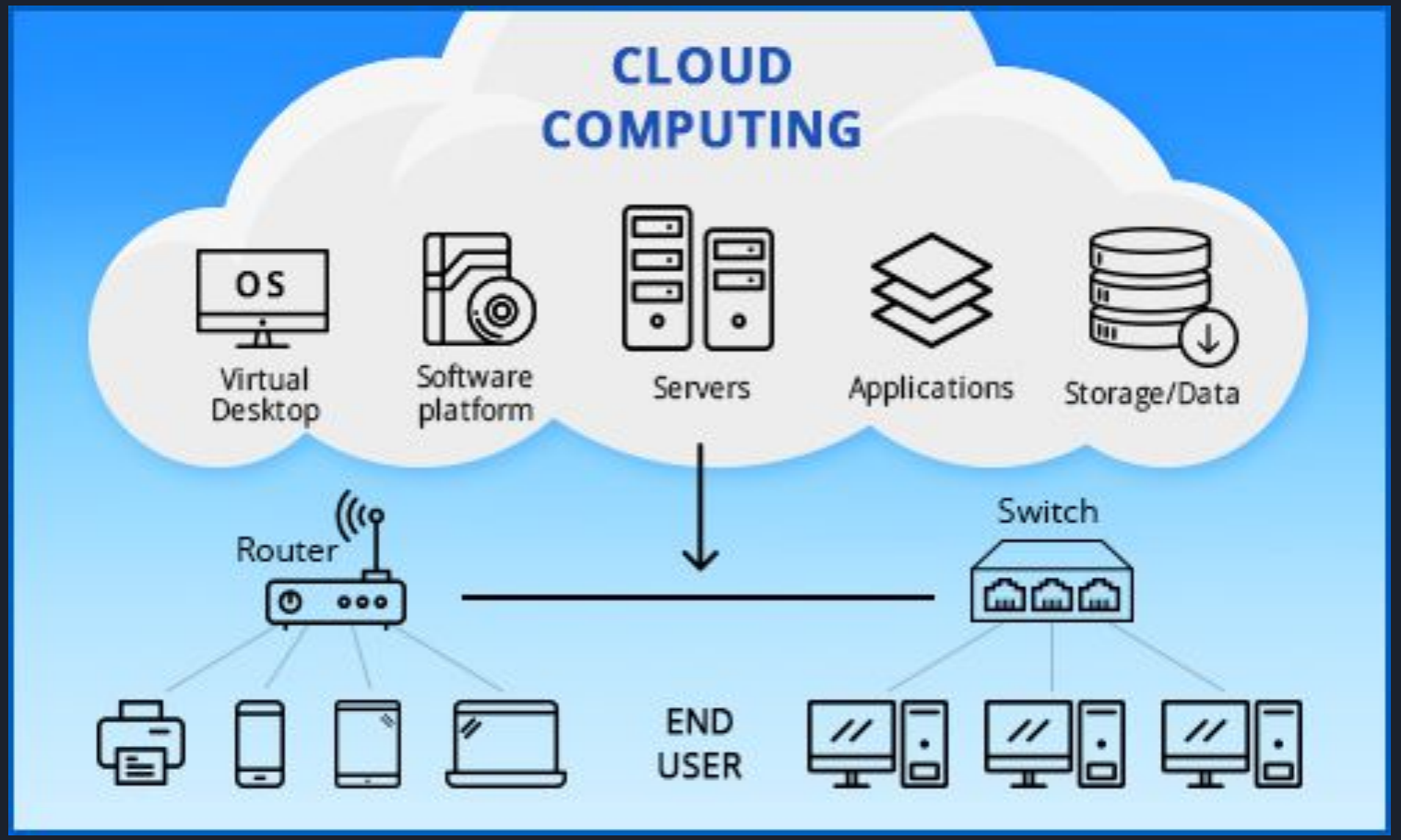
Why?

It enables devices to observe identify and understand a situation without being dependent on human help.

- IoT in Home
- IoT in Transport

Cloud:

- Cloud is an interconnected network of powerful servers.
- Accessing computer, information, software applications through a network connection.

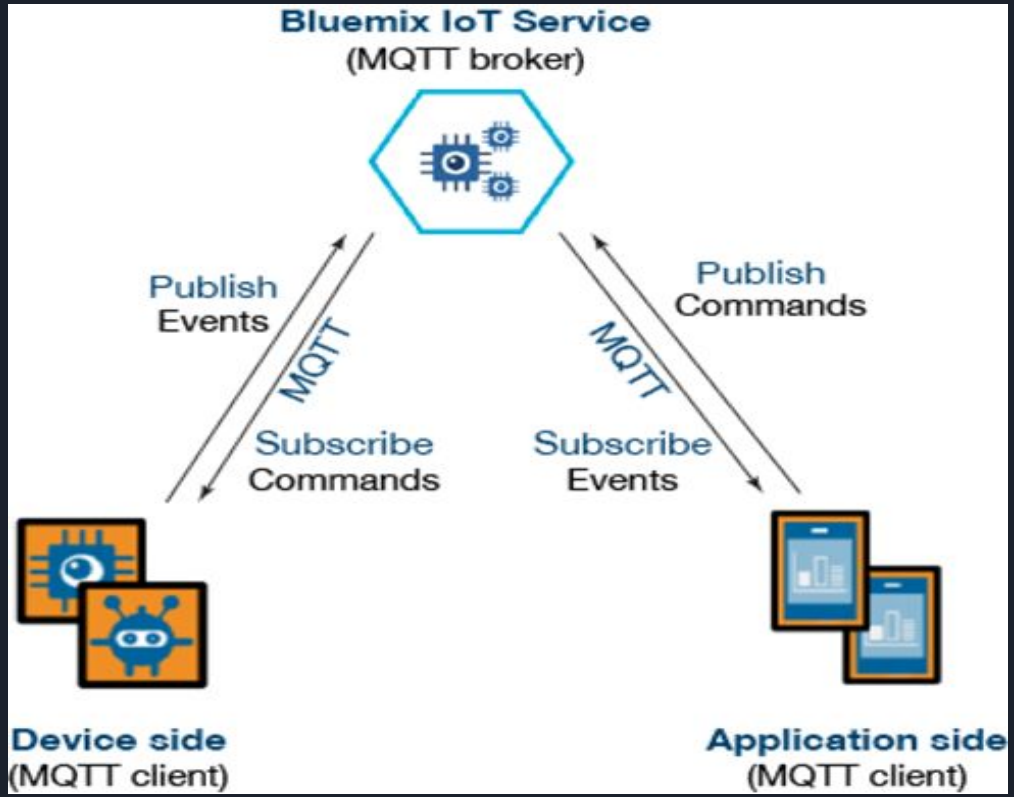

CLOUD
COMPUTING
OS
Virtual
Desktop
Software
platform
Servers
Applications
Storage/Data
Router
Switch
END
USER

Different platforms of IOT

- IBM WATSON
- GOOGLE CLOUD
- AMAZON AWS
- MICROSOFT AZURE
- MQTT
- THINGSPEAK
- IFTTT

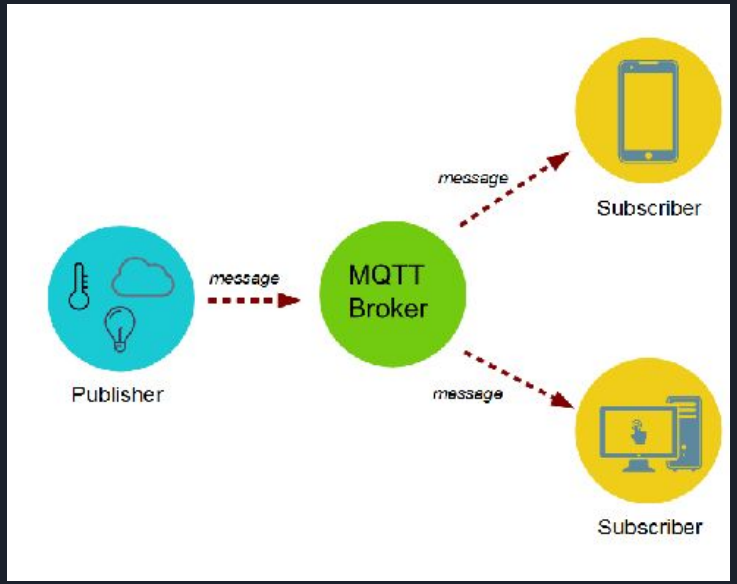
MQTT:: Message Queuing Telemetry Transport

- Publish/Subscribe Messaging Protocol.
- Designed for lightweight M2M communications.
- Developed by IBM.
- Two Aspects: Client & Broker
- Client includes Publisher or Subscriber.



KEY HIGHLIGHTS OF MQTT

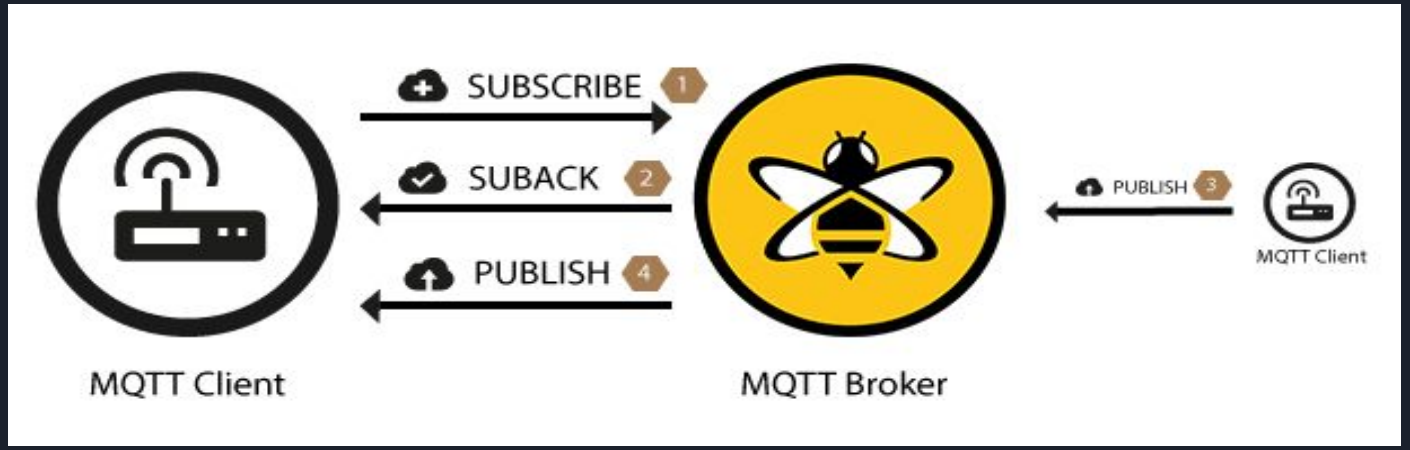
- Publish/ Subscribe Architecture
- Lightweight Protocol
- Works on top of TCP/IP
- Uses SSL/TLS for Security
- QoS Support
- Low power Usage
- Perfect for Iot Applications.

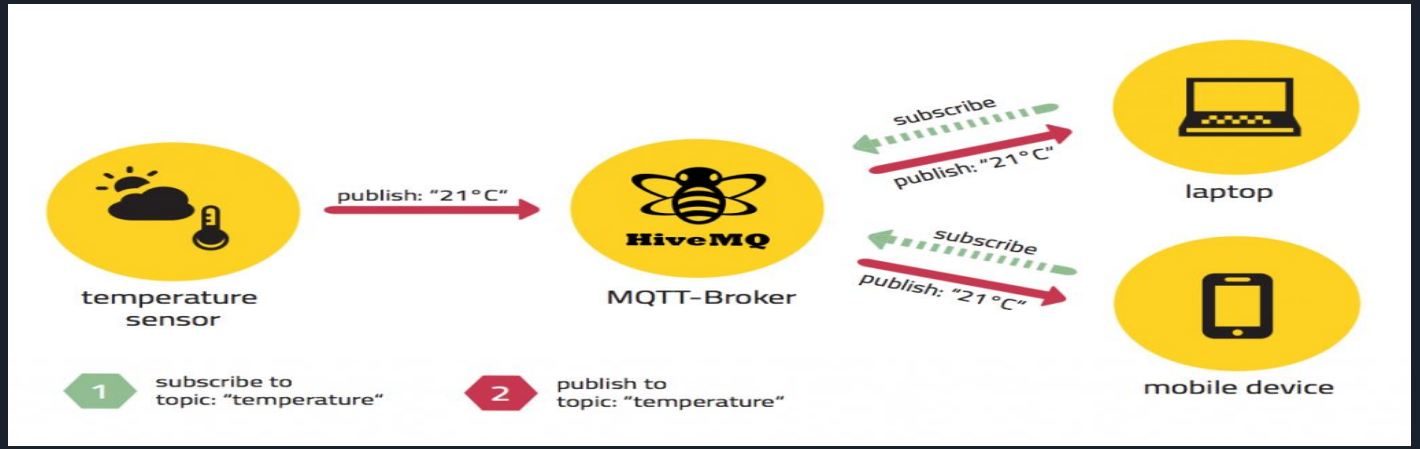


WHY NOT HTTP?

- HTTP is slower
- It has more overhead
- HTTP is a Power Consuming Protocol
- MQTT is therefore more suitable for IoT development.

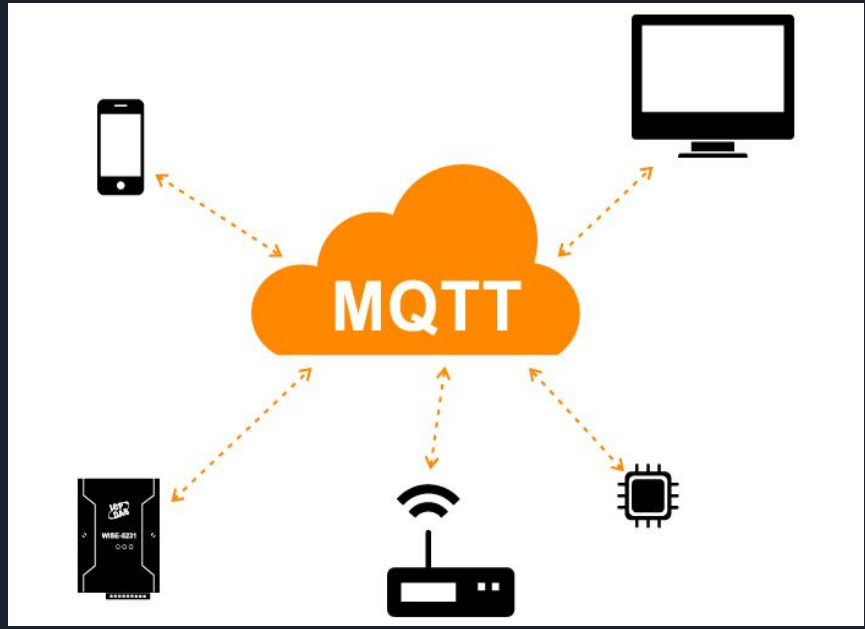
PUBLISH/SUBSCRIBE





BROKER

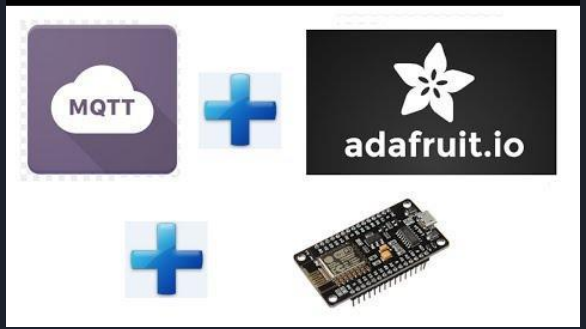
- The counterpart of MQTT client is MQTT Broker.
- The broker is responsible for receiving all messages, filtering the messages, determining who is subscribed to each message and sending the message to the subscribed clients.



DIFFERENT BROKERS

- HiveMQ
- ActiveMQ
- RabbitMQ
- Mosquitto
- flespi
- IBM MessageSight
- Mosca & Aedes
- MQTT Dashboard
- Eclipse IoT
- VerneMQ
- Solace
- CloudMQTT
- emqttd
- Wave
- vertx-mqtt-broker
- JoramMQ
- Moquette MQTT

ADAFRUIT.IO

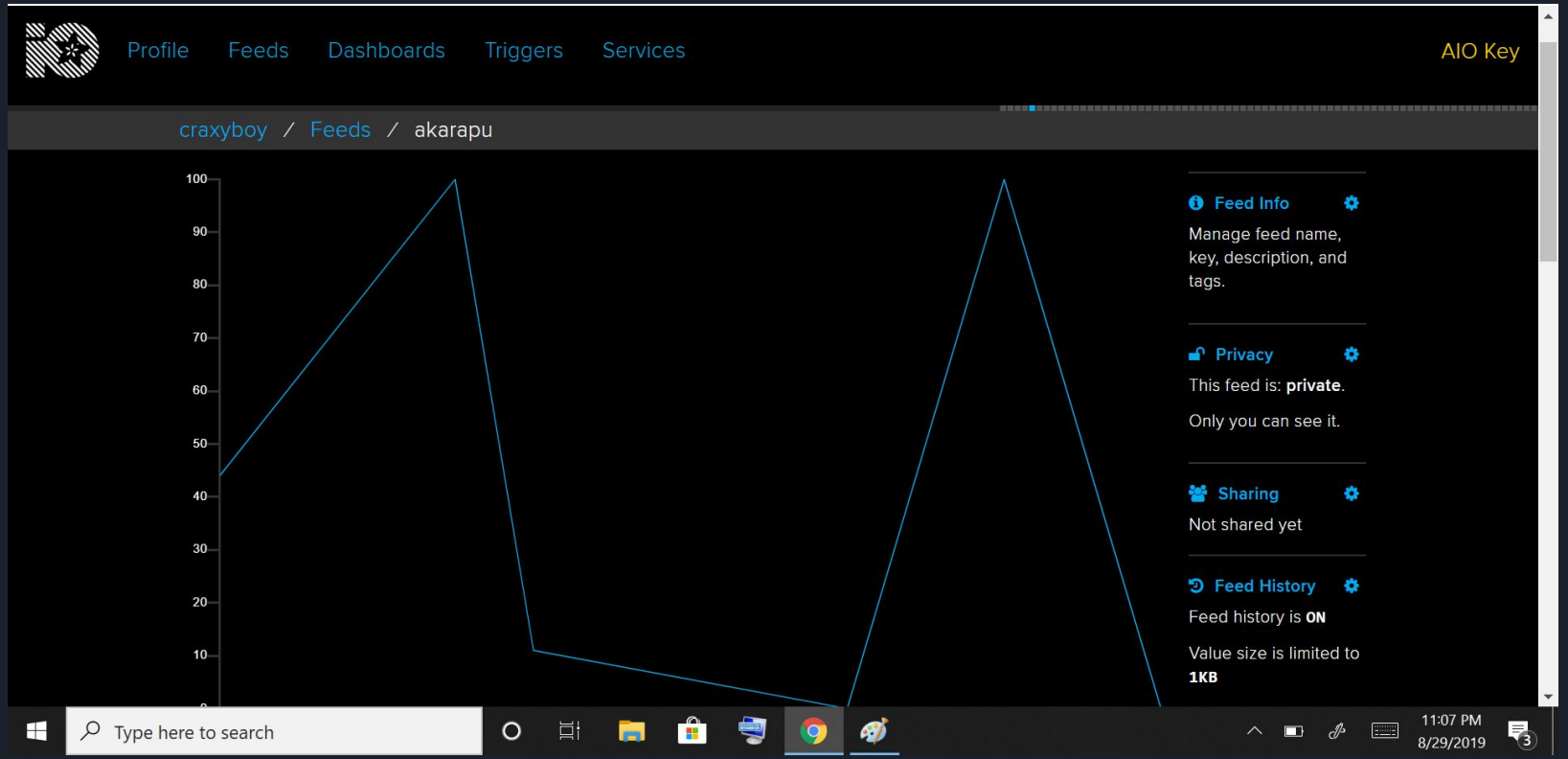


Adafruit.io is a *cloud service* . You can connect to it over the Internet. It's meant primarily for storing and then retrieving.

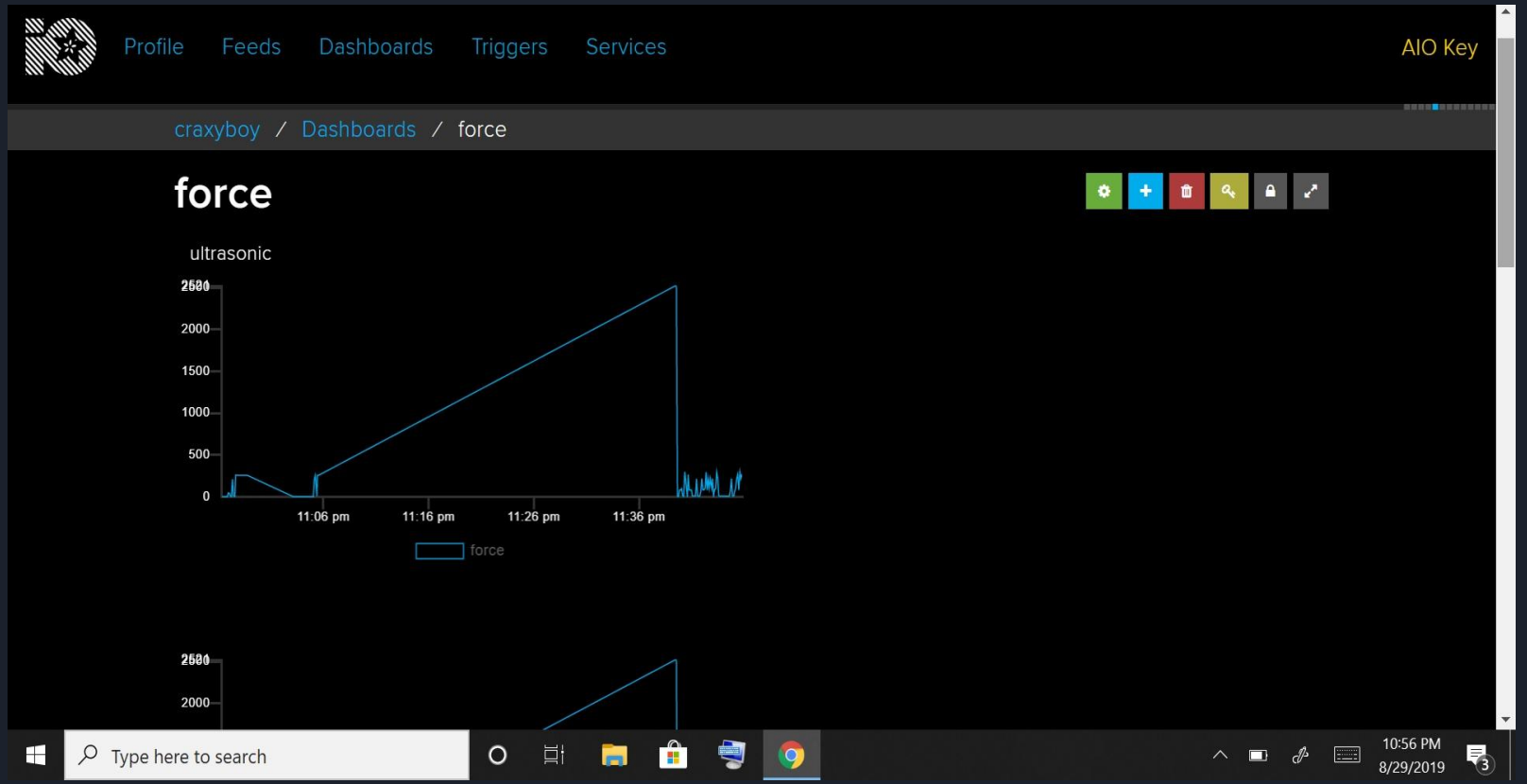
What can Adafruit IO do for me?

- Display your data in real-time, online
- Make your project internet-connected: Control motors, read sensor data, and more!
- Connect projects to web services like Twitter, RSS feeds, weather services, etc.
- Connect your project to other internet-enabled devices
- The best part? All of the above is do-able for **free** with Adafruit IO

FEEDS


Profile
Feeds
Dashboards
Triggers
Services
AIO Key
craxyboy / Feeds / akarapu
100
90
80
70
60
50
40
30
20
10
Feed Info
Manage feed name, key, description, and tags.
Privacy
This feed is: private.
Only you can see it.
Sharing
Not shared yet
Feed History
Feed history is ON
Value size is limited to 1KB
Type here to search
11:07 PM
8/29/2019

DASHBOARD


Profile
Feeds
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Services
AIO Key
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2000
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1000
500
0
11:06 pm
11:16 pm
11:26 pm
11:36 pm
force
Type here to search
10:56 PM
8/29/2019

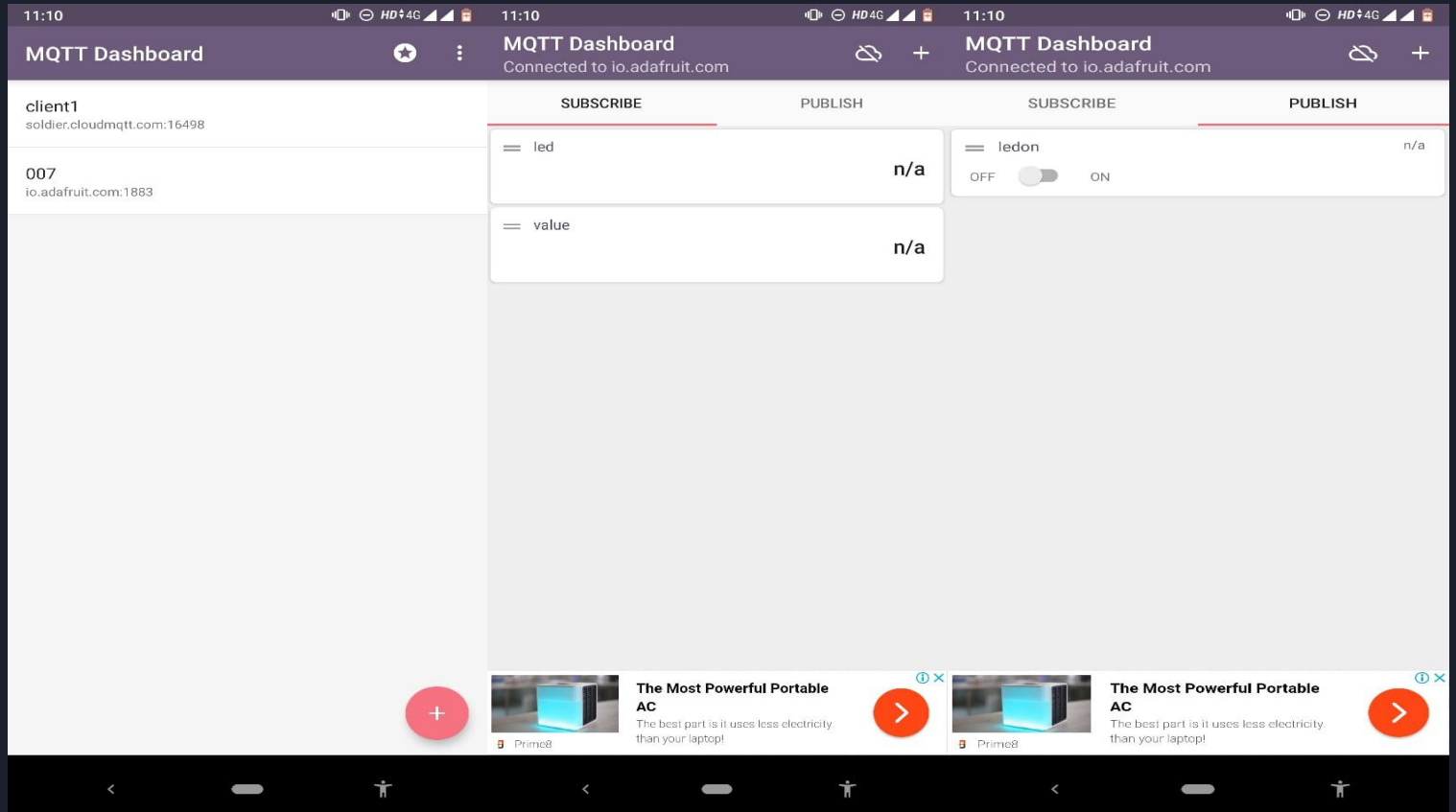
IFTTT

*If This Then That, also known as IFTTT, is a web-based service to create chains of simple conditional statements, called applets.

*An applet is triggered by changes that occur within other web services.

*It is used to create action between electronic devices using server data.

MQTT DASHBOARD



HOW TO CONNECT ?

Thank
you