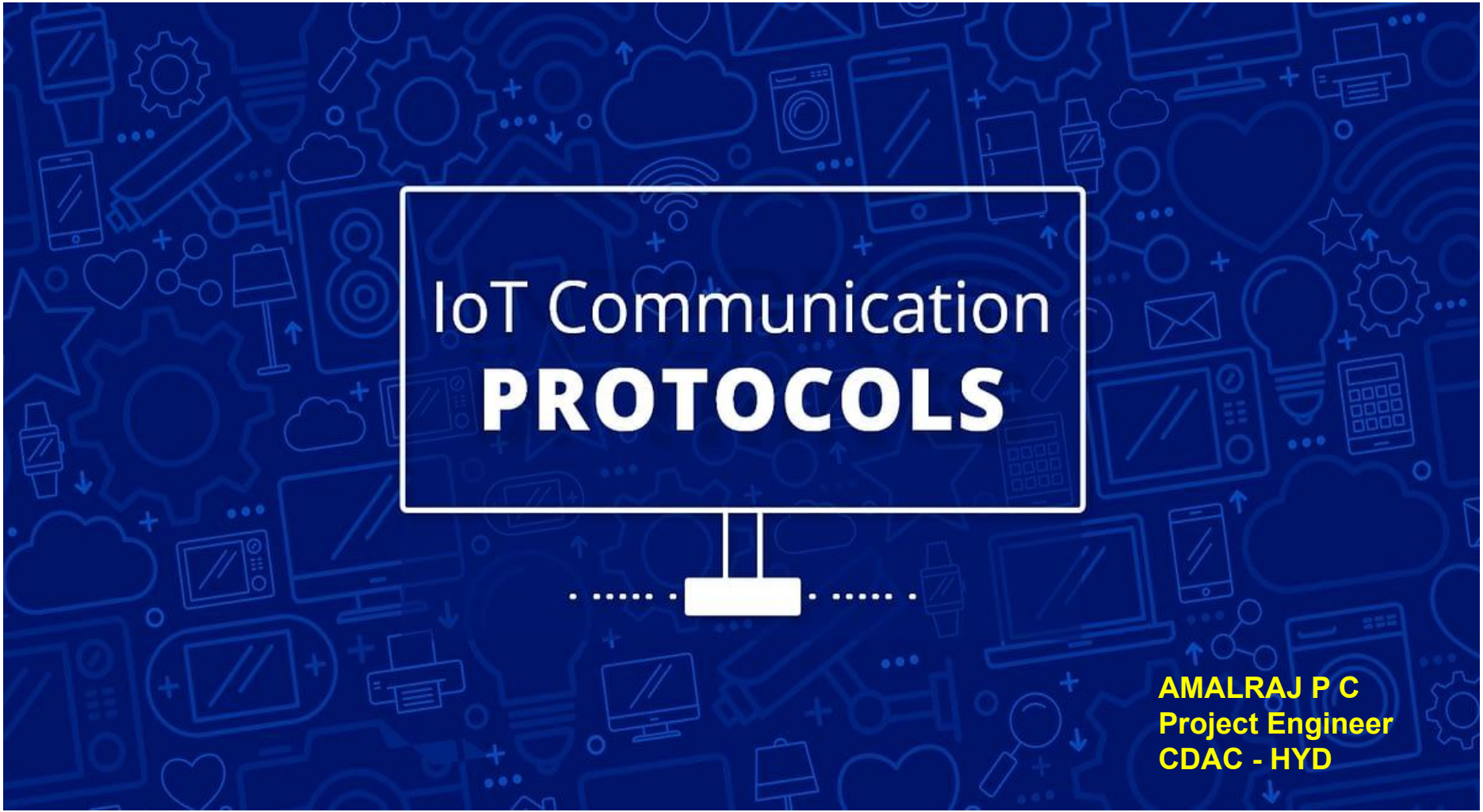


AMALRAJ P C
Project Engineer
CDAC - HYD

Agenda

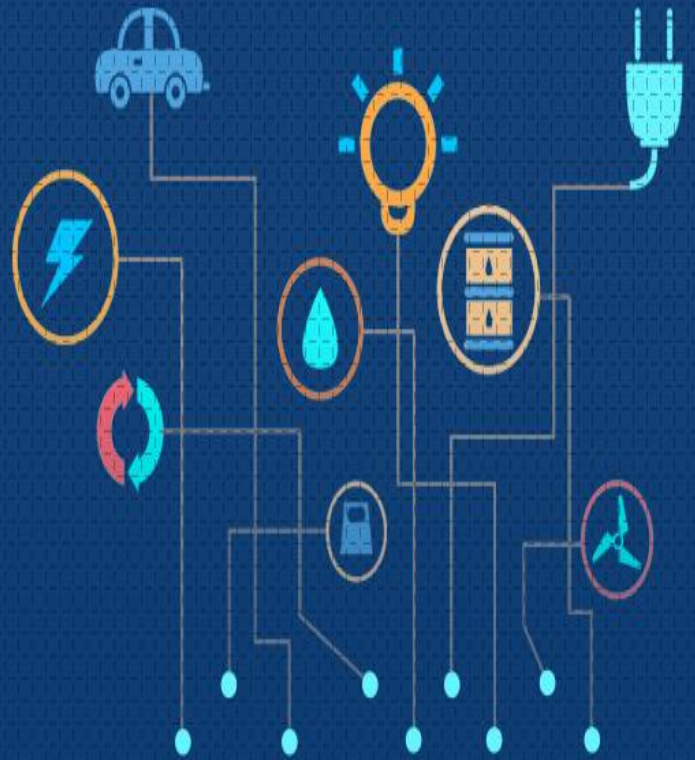
What is protocol ?

Why more protocols ?

What are the different type of IoT protocol ?

What is MQTT ?

What is CoAP ?



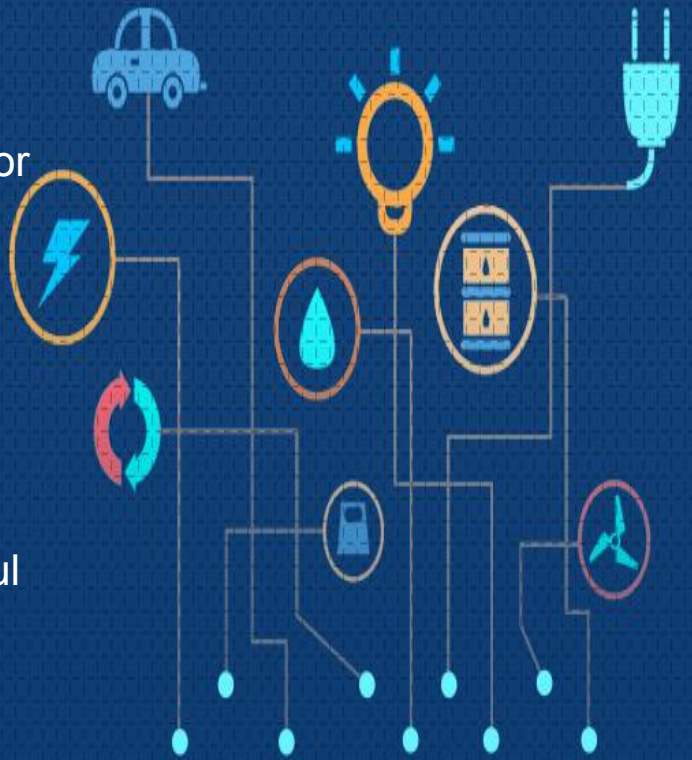
What is protocol ?

What is communication protocol ?

A communication protocol is the set of rules that two or more entities of communication system to transmit information.

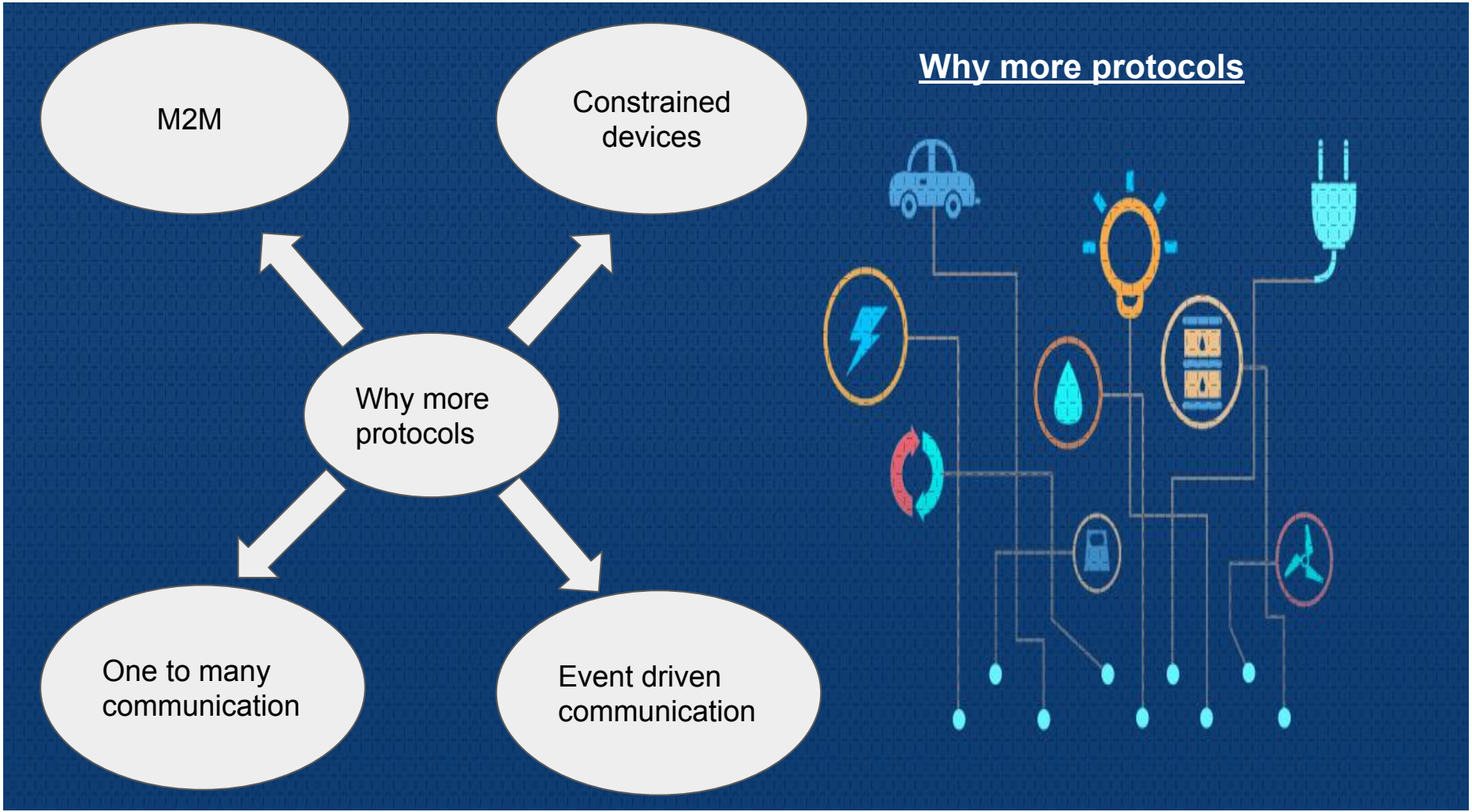
What is IoT protocol ?

IoT protocols are the set of rules that enable the IoT hardware to exchange data in structured & meaningful away.



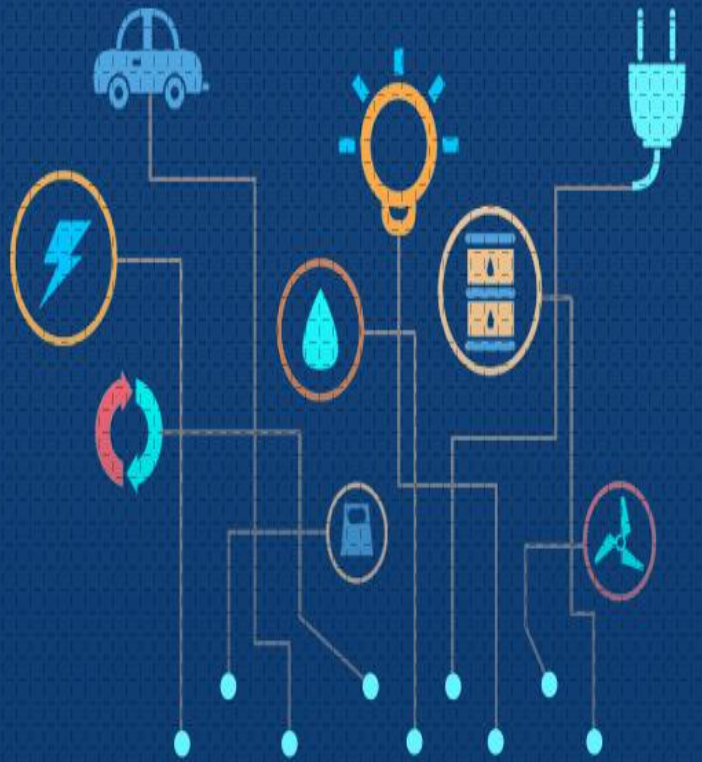
Why more protocols?

Why more protocols



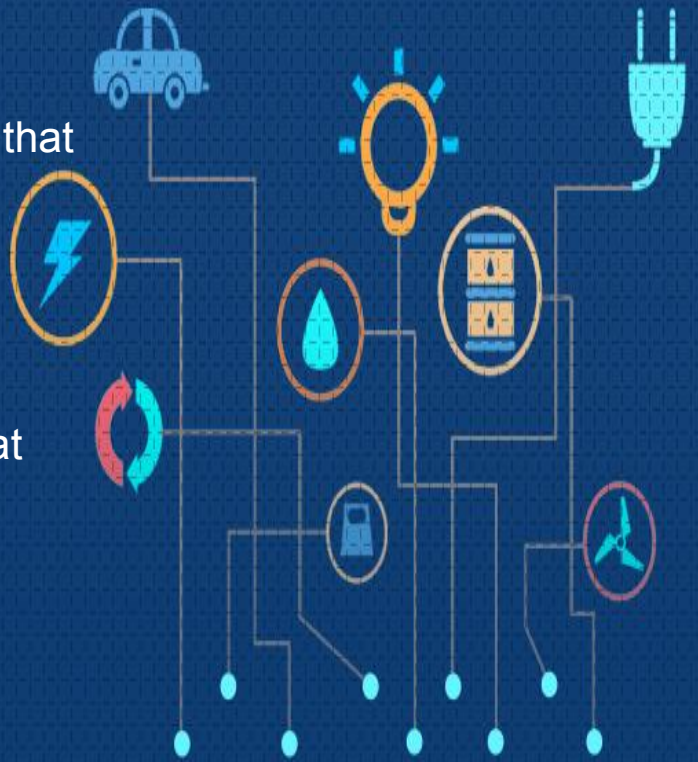
IoT Protocols

- Protocols
  - CoAP
  - MQTT
  - AMQS
  - DDS



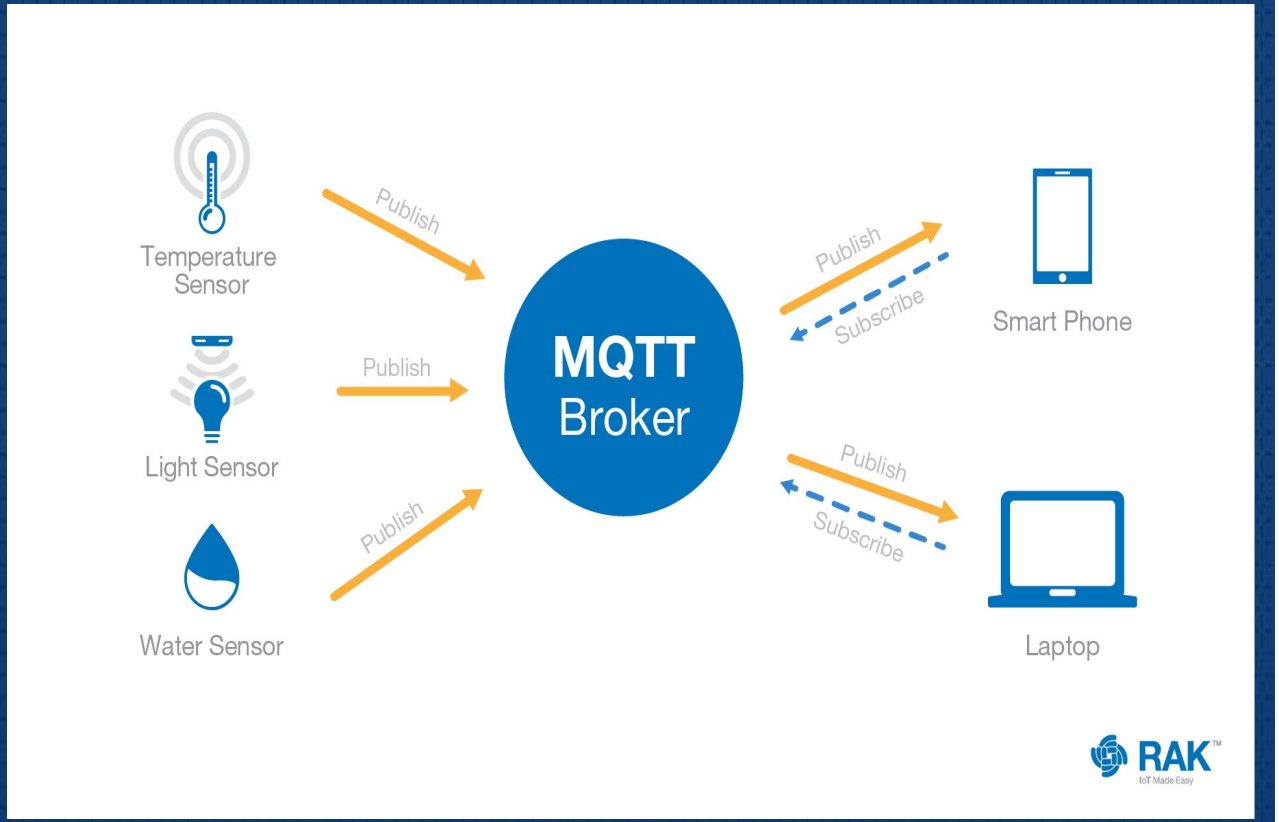
What is MQTT ?

- Message Queue Telemetry Transport.
- MQTT is an emerging communication protocol that is intended to be used in Iot sector.
- This protocol is jointly developed by IBM & Eurotech.
- It is lightweight, publish - subscribe protocol that transport messages between the devices.
- Messages are published & subscribed by a mediator called broker.



MQTT Components

- Message
- Publisher
- Subscriber
- Broker
- Topic



Message

- The data carried by the MQTT protocol across the network for the application.
- When a message is transported by MQTT it contain payload & topic.

Publisher

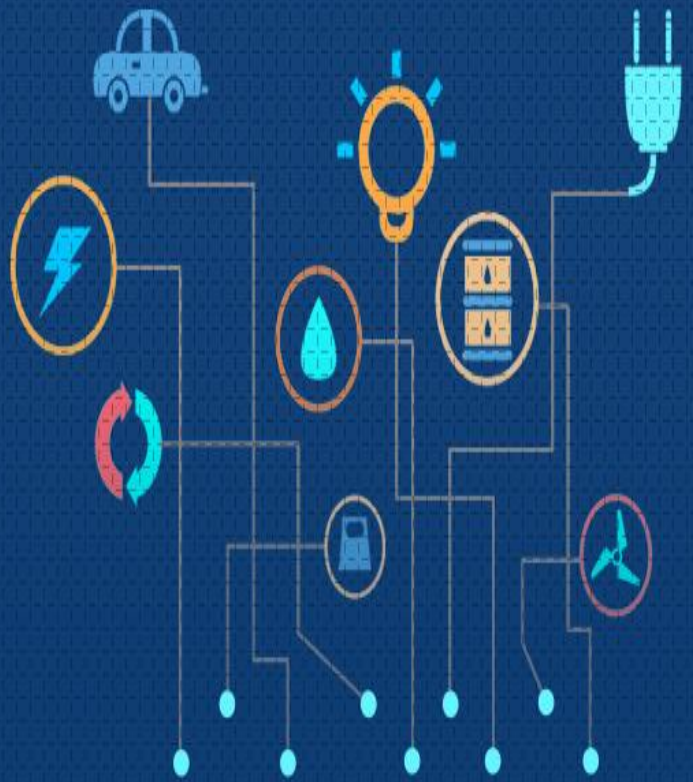
- A sensor or any IoT device that send a piece of information.

Subscriber

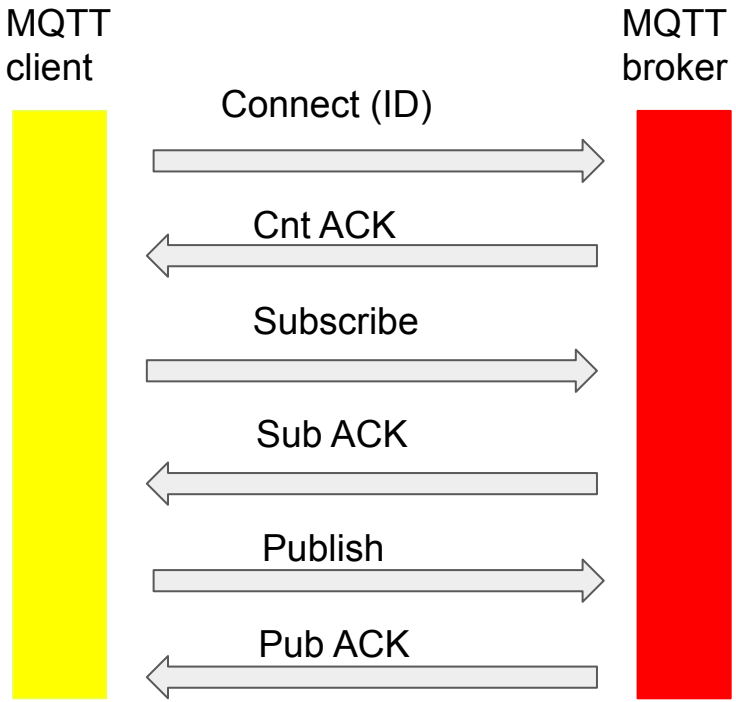
- Anyone who is interested to receive a piece of information.

Broker

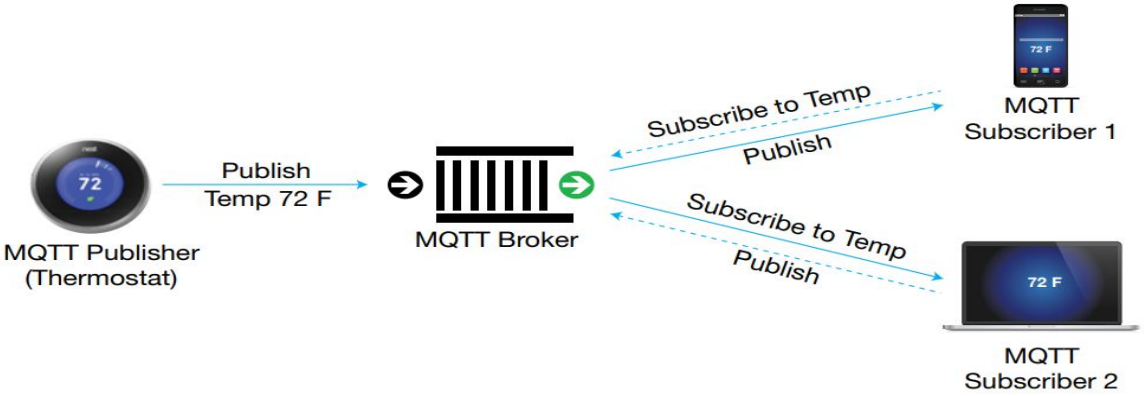
- It is an intermediary that receives information from the publisher & forward them to subscriber.



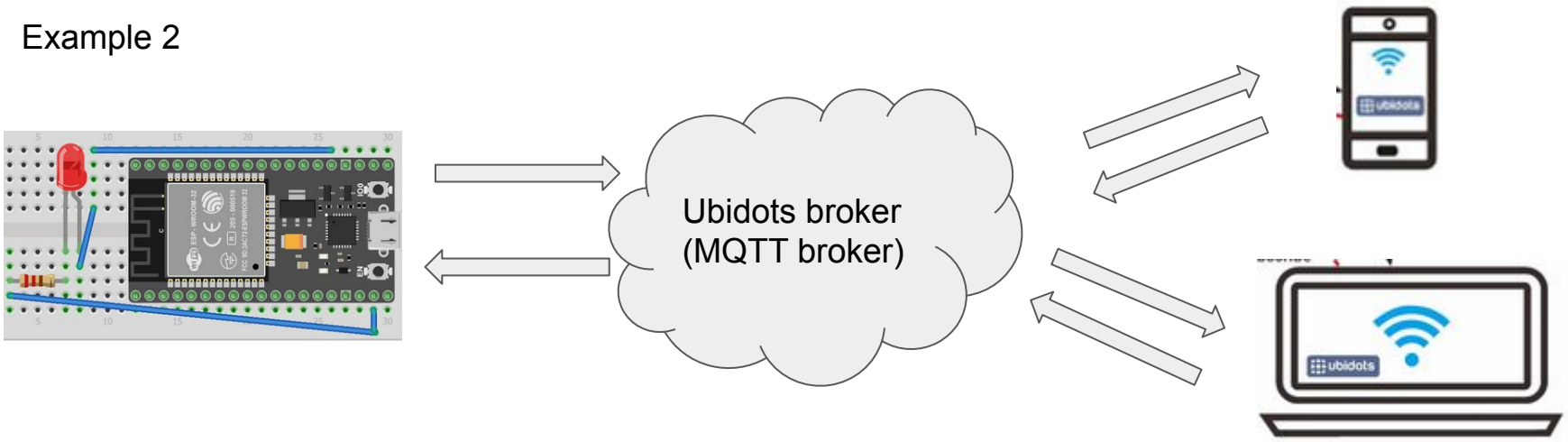
MQTT Message Flow



Example 1

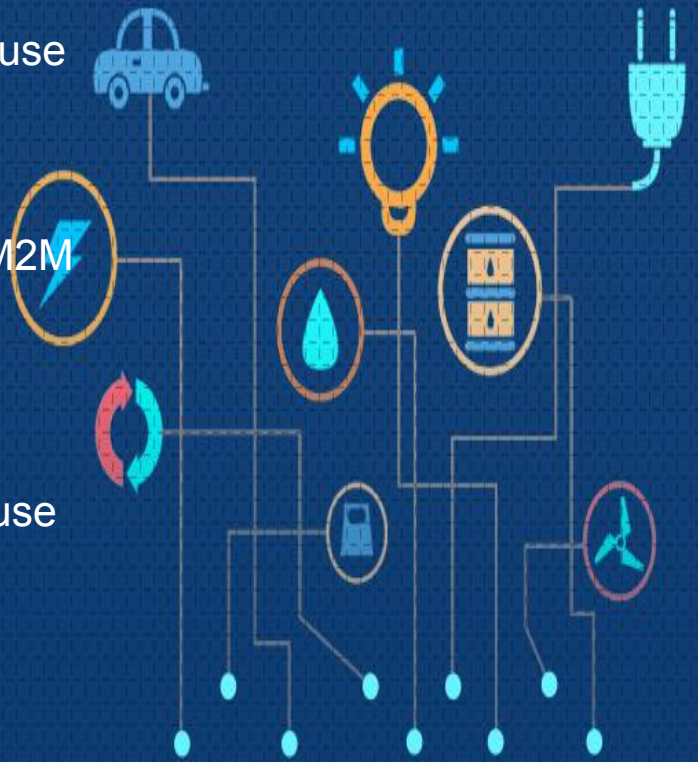


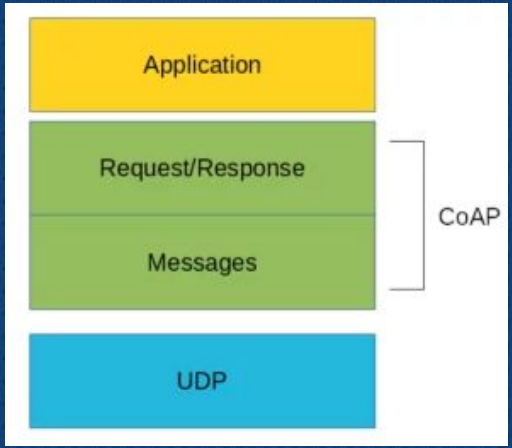
Example 2



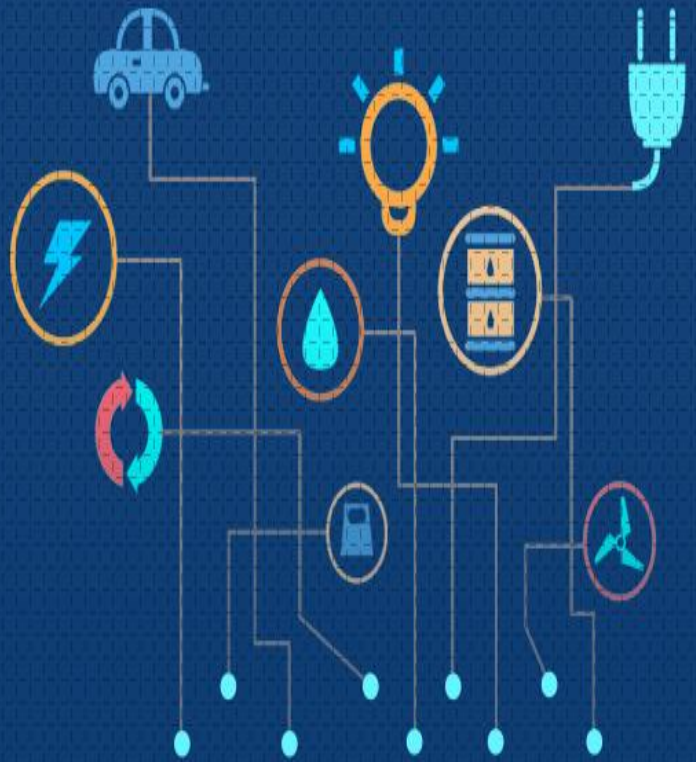
What is CoAP ? (Constrained Application Protocol)

- CoAP is a embedded web transfer protocol for use with constrained devices & constrained node in IoT.
- CoAP is lightweight protocol & specialized for M2M applications.
- CoAP is built over UDP.
- CoAP follows the request-response pattern & use method similar to HTTP (GET,POST ,DELETE etc).
- The CoAP has been standardized by IETF.



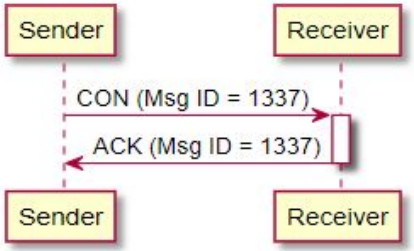


CoAP Sublayers

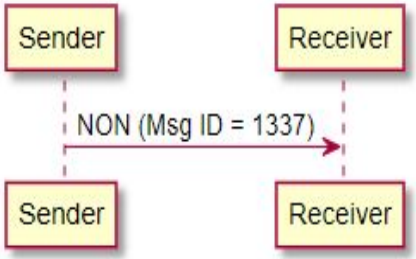


- Messages
  - Confirmable
  - Non Confirmable
  - Acknowledgment
  - Reset
- Request / Response
  - Piggy-backed
  - Separate response
  - non - confirmable request / response

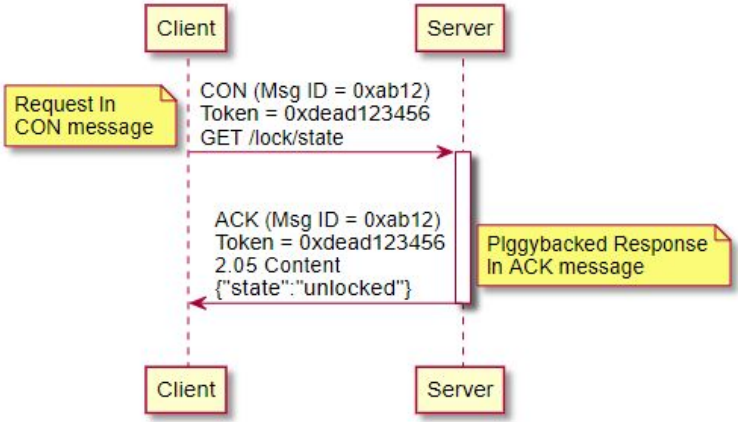
Confirmable msg



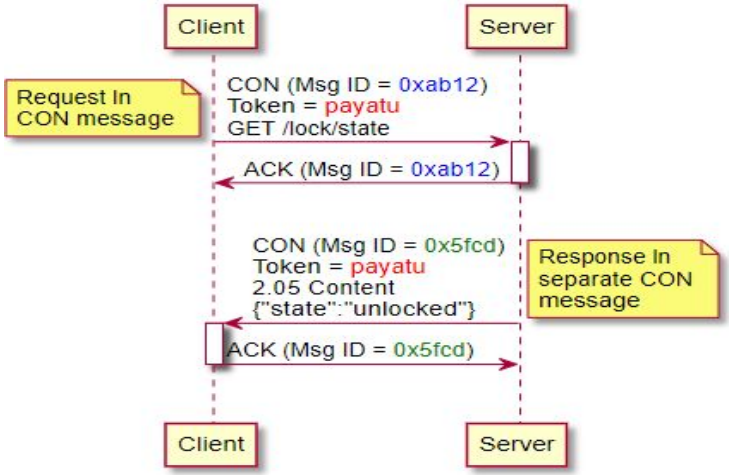
Non confirmable msg



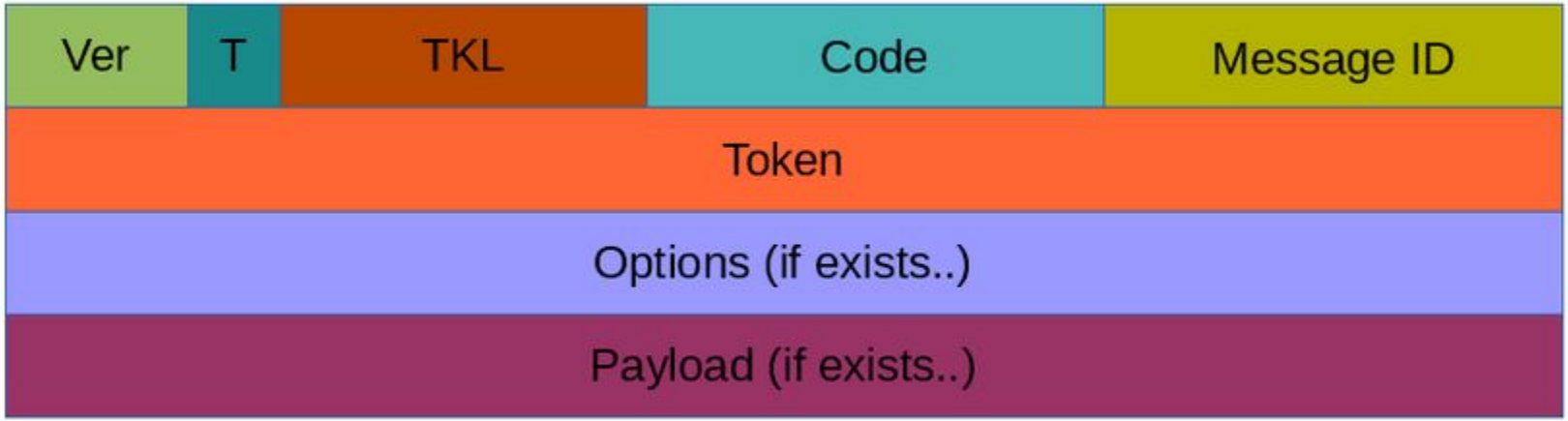
Piggy back



Separate response



CoAP Message Format



Ver: It is a 2 bit unsigned integer indicating the version

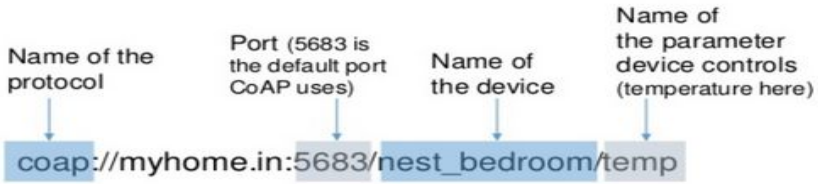
T: it is a 2 bit unsigned integer indicating the message type: 0 confirmable, 1 non-confirmable

TKL: Token Length is the token 4 bit length

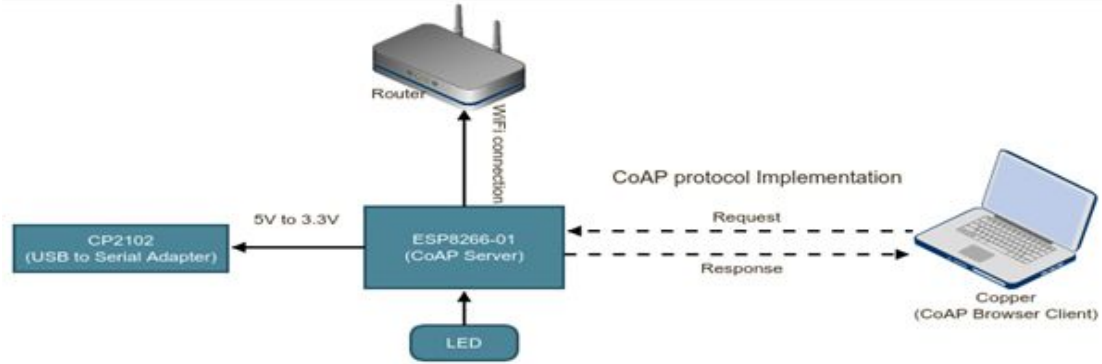
Code: It is the code response (8 bit length)

Message ID: It is the message ID expressed with 16 bit

Example 1



Example 2




THANK YOU