

# Communication Patterns in IoT

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# What is communication Pattern?

- **End Device (motes) <--> Gateways <--> IoT Platform (Cloud)**
- IoT all about communication between devices, gateways, and the Cloud.
- Messages are exchanged between all of these parties in order to provide a comprehensive end-to-end solution.
- How messages flow between parties(things-gateway-cloud) and the objectives they carry is termed as communication pattern.

# Major communication Patterns

- Telemetry
- Inquiries
- Commands
- Notifications

# What is telemetry?

- Data flows in one direction from the device to other systems for conveying status changes in the device itself.
- Example : Sensor Reading
- Sensor → IoT Device (ESP32/RPI/ESP8266)

# Inquiry

- Requests from the device looking to gather required information or asking to initiate activities.
- Example:
- IoT Devices <-----GET Request-----> IoT Platform

# Command

- Commands from other systems sent to a device (or a group of devices) to perform specific activities expecting a result from the command execution, or at least a status for that.
- Example : Turn on the LED connected to Device or read some sensor data from BLE enabled device e.g. (MI band)
- **IoT Platform <-----POST-----> IoT devices (http protocol)**
- **BLE Server <---- att protocol ---- read data ---> BLE Client**

# Notification

The flow is similar to the Command pattern, but without the need for a reply and opposite to telemetry.

**Example: Server sends a notification to client that device went offline**

**MQTT LWT Features:**

Publisher Device (Connected with Sensors) – End Device <----- Message Broker (Mosquito)

