SNS COLLEGE OF TECHNOLOGY

Coimbatore-35

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECE308- WIRELESS TECHNOLOGIES FOR IOT

III ECE / VI SEMESTER

UNIT 1 – OVERVIEW OF INTERNET OF THINGS

TOPIC 10 –Message communication protocols (CoAP,MQTT, XMPP) for IoT/M2M devices

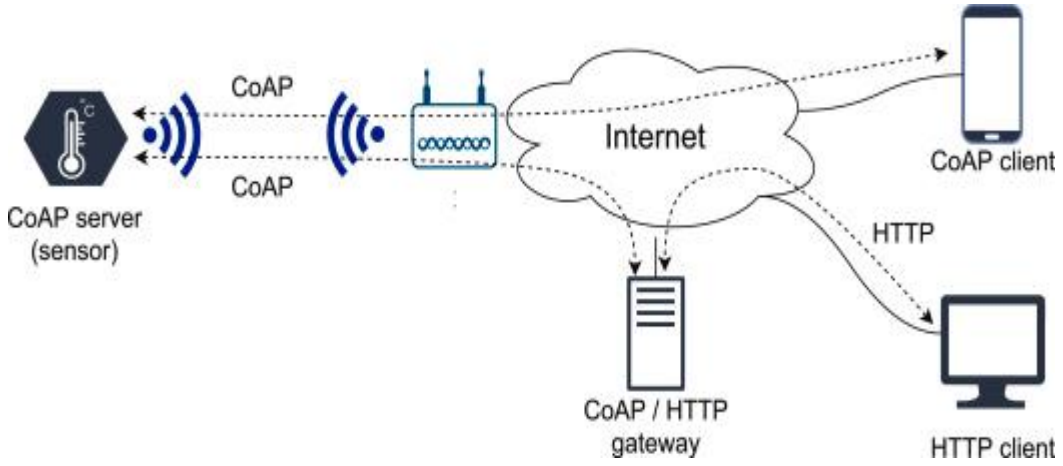
CoAP (Constrained Application Protocol)

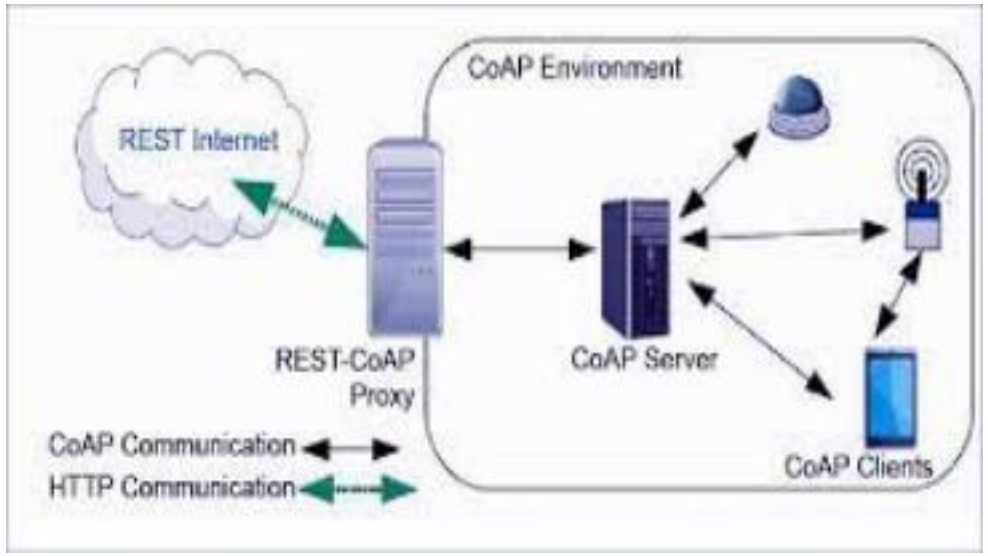
- The CoAP was designed to enable communication using constrained nodes and networks for IoT applications, and connecting them to the internet.
- Since IoT systems would require numerous nodes, where each node might **not have high memory for cost efficiency**, CoAP was designed to **allow data transmission** to occur with minimum resources with only a **4-byte fixed header.**

CoAP Client and Server

- Object or resource uses CoAP
- CoAP client at a device, IoT/M2M Area Local Network or Gateway sends requests to a server
- CoAP server sends the responses, messages, resources by several specified functions like GET, PUT, POST, and DELETE.

CoAP Architecture Client and Server

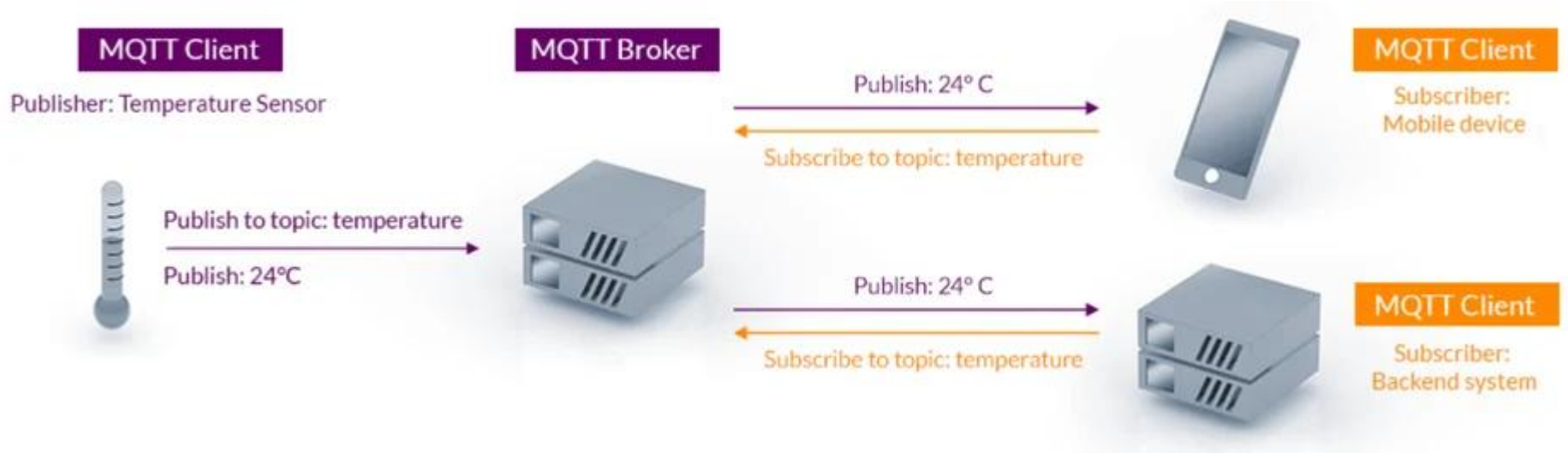




(MQTT)

Message Queuing Telemetry Transport

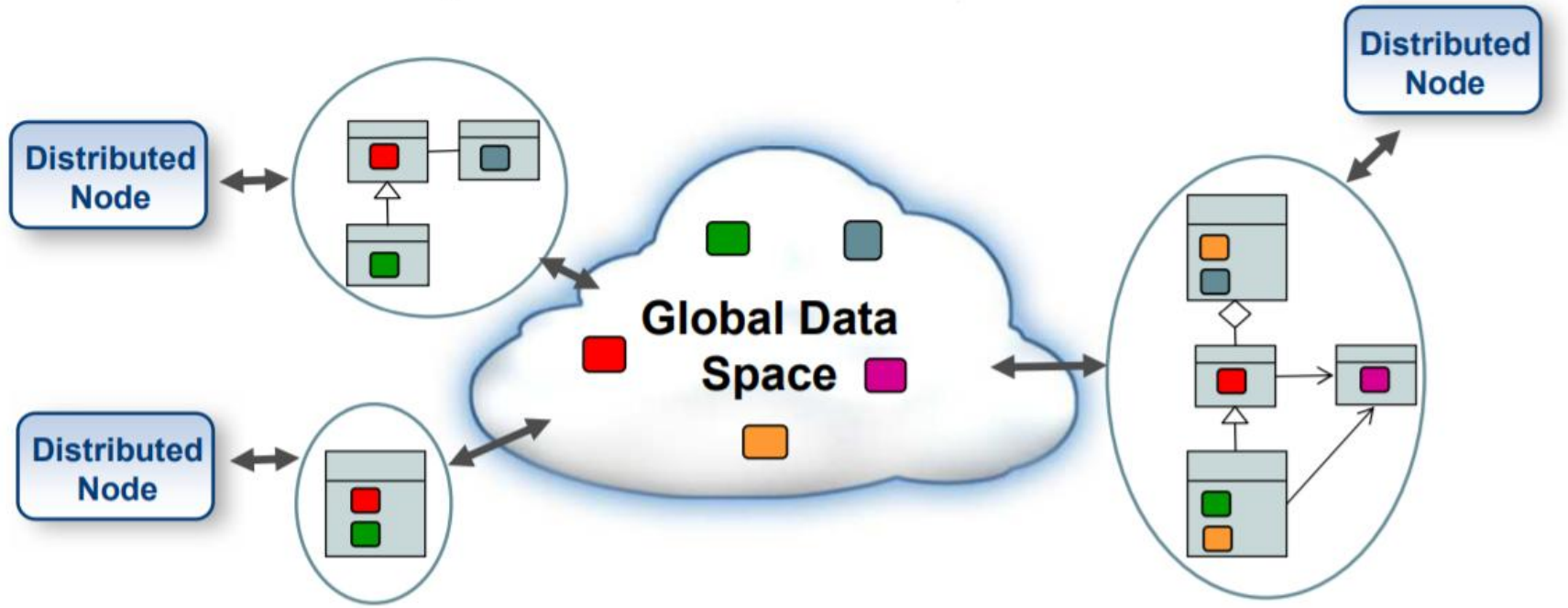
The MQTT technology runs using the MQTT Publish/Subscribe architecture and establishes the network from 2 different component categories: Clients (Publisher and Subscriber) and Brokers. It usually uses the TCP/IP protocol suite, which runs by first establishing connections, then allows multiple exchanges of data until one party finally disconnects itself.



- **XMPP (Extensible Messaging and Presence Protocol)**

- XMPP, developed in the year 1999, is an open-source protocol that was based on XML (Extensive Markup Language). Hence, it supports rapid structured **data exchange between two or more network** entities and enables the addition of extension for operation.
- The XMPP protocol is used commonly for instant messaging purposes, **including voice and video calls, multi-person chats,** etc. However, the protocol also serves IoT function properly as it's flexible for connection protocols, secure, and enables middleware communication **without requiring human intervention**
- A few applications of IoT with XMPP include the **Google Cloud Print and Logitech Harmony Hub** (home automation and media control).

XMPP


Distributed Node
Distributed Node
Distributed Node
Global Data Space