

## Lesson 14

Program implementation using Paho and ADT  
Example 9.12 in MQTT clients and MQTT broker  
communication with an Android phone

# Program implementation in Pub/Sub mode

- Eclipse Paho programme implementation for communication with an Android phone using Paho and ADT
- Connected sensor and actuator, which are publishing the sensed data
- Subscribing for control messages using MQTT Android clients
- Coding is similar to Example 9.11.

# MQTT Client

- Implement codes for Subscriber class for subscribing to the sensed data
- for example, Electric Kettle Temperature Sensor by the Android phone
- Use Eclipse Moquette Paho implementation of MQTT using TCP

# Eclipse Paho Android Example

- Assume that Java JDK version 6 or higher package is used for implementation in Paho. Also Android Software Development Kit (SDK) is installed and Android Development Toolkit (ADT) is added as plugin to the Eclipse.
- `Package org.eclipse.pahoAndroidApplicationExample;`
- `import org.eclipses.paho.client.mqttv3.MqttClient;`
- `import org.eclipses.paho.client.mqttv3.MqttException;`
- `import org.eclipses.paho.client.mqttv3.MqttMessage;`

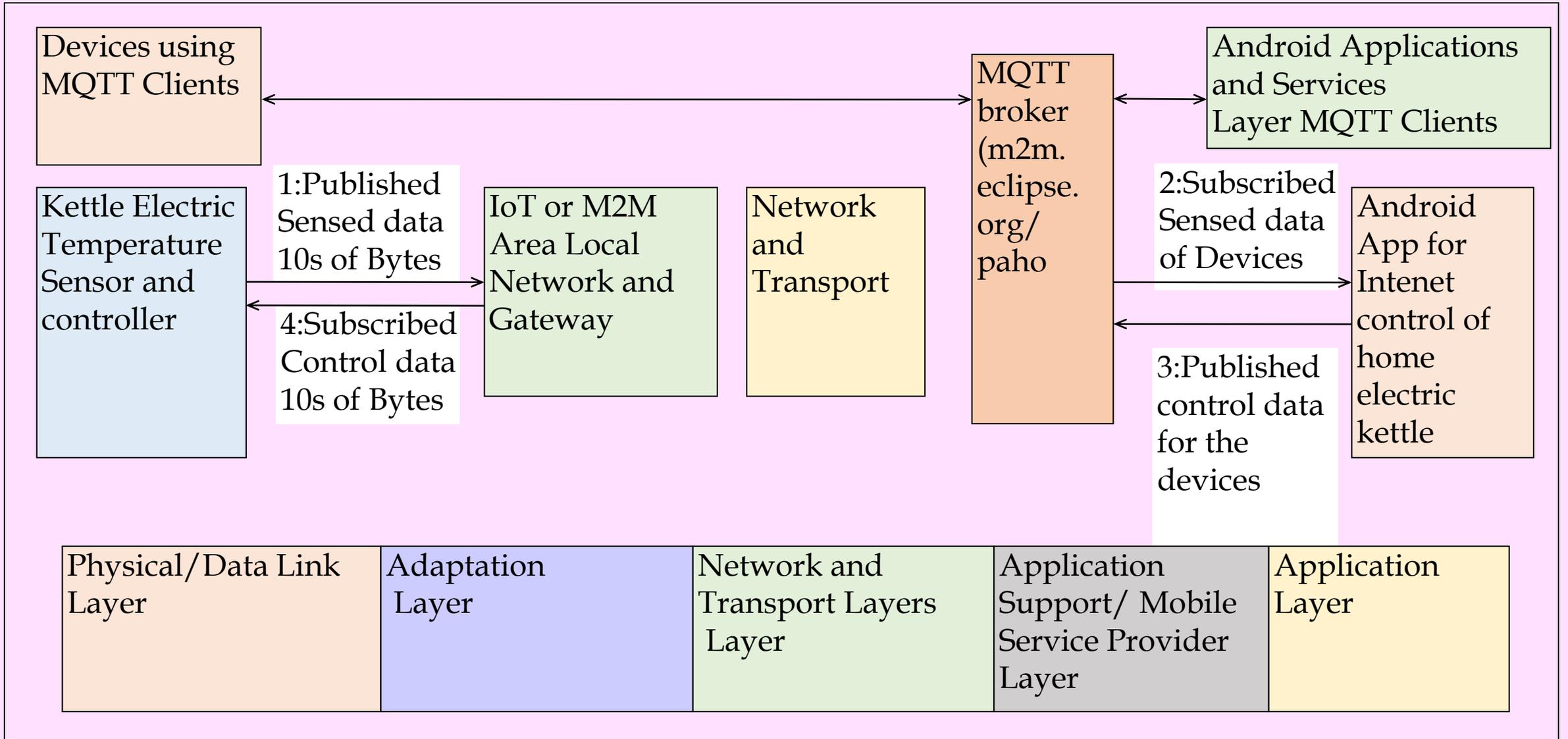


Fig. 9.3 Connected Sensor and Actuator publishing the sensed data and subscribing for the control data using MQTT Android clients' communication with Application layer MQTT clients through an MQTT Broker

## Example 9.12 Eclipse Paho Java implementation of MQTT clients-broker architecture

- Communication of sensed data to the applications and central controller for the control of electric kettle
- Implement the Subscriber class for subscribing to the sensed data (for example Electric Kettle Temperature Sensor) by the Android phone

## Step (i)

- /\*Let first step is that within the class Subscriber, declare URL of the MQTT Broker and create instance of class MQTTClient
- Use MAC Address as Client\_ID for publisher ID and the initialization of the MqttClient instance
- Use -subAndroid as a suffix for the Client\_Id. \*/
- public class Subscriber {
- public static final String MQTT\_BROKER\_URL =  
“tcp://broker.mqttdashboard.com:1883”;

## Step (ii)

```
/* client is the instance of MqttClient */  
private MqttClient client;  
public Subscriber()  
{ String a1 = "-subAndroid";  
/* Declare clientDevice_ID using method  
getPhoneNumber( ). */
```

## Step (ii)

```
String clientDevice_Id = Utils.getPhoneNumber () + a1;  
try {  
    mqttClient = new MqttClient(MQTT_BROKER_URL,  
        clientDevice_Id);  
}  
catch (MqttException e) {
```

## Step (ii)

```
/* Write codes for callback method */
```

```
/* On exeception, Assume that callback method is print  
the stack trace. */
```

```
e.printStackTrace();
```

```
System.exit(1); } } }
```

# Summary

We learnt

- Example for the usages of Paho for Android MQTT clients for controlling an Electric Kettle.

End of Lesson 14 on  
Program implementation using Paho and ADT  
Example 9.12 in MQTT clients and MQTT broker  
communication with an Android phone