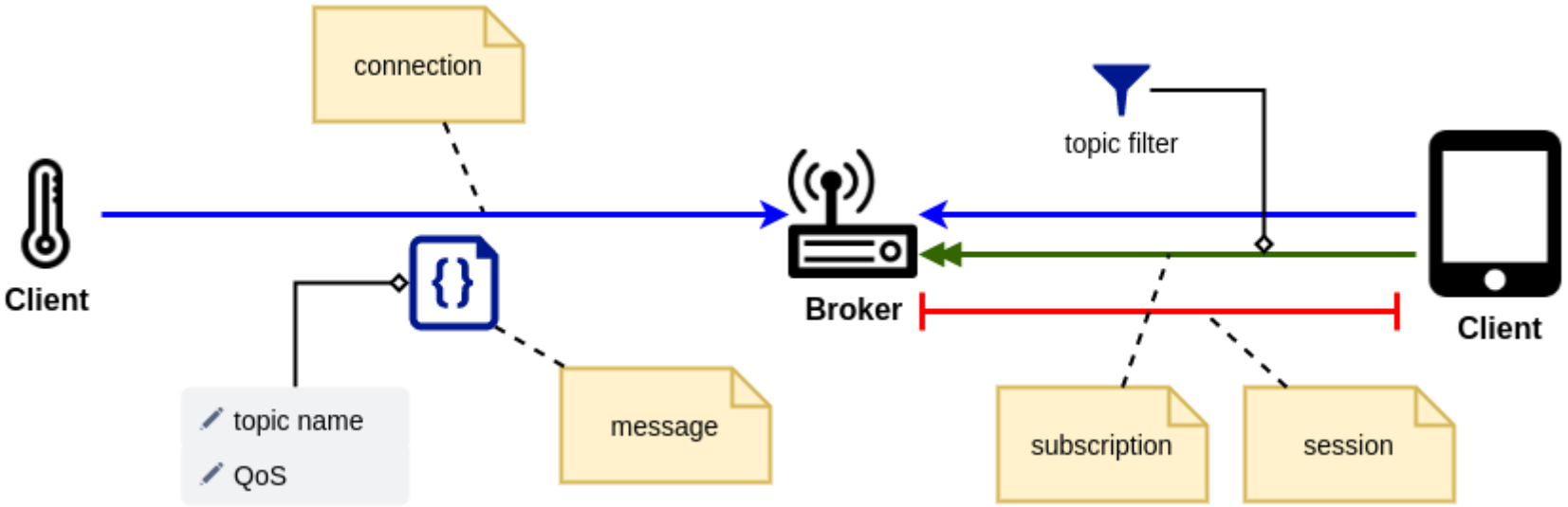
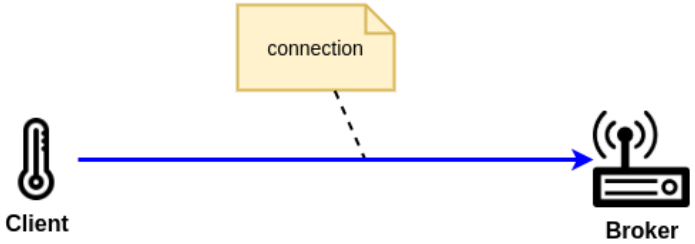
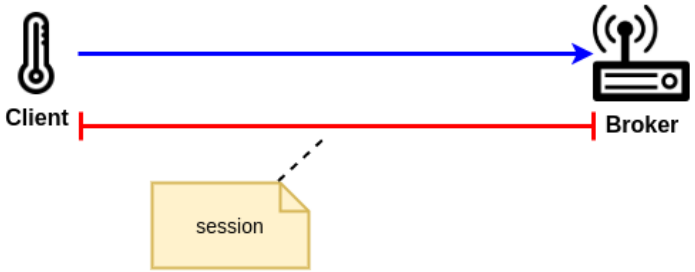
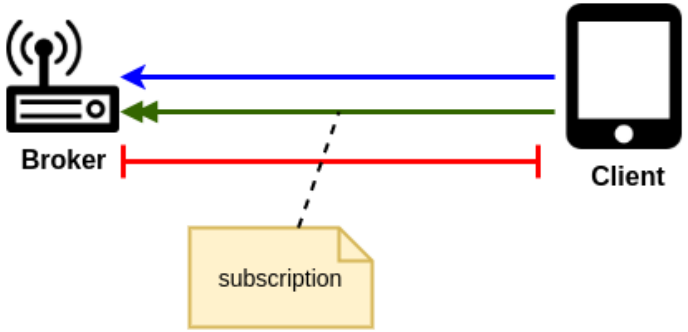
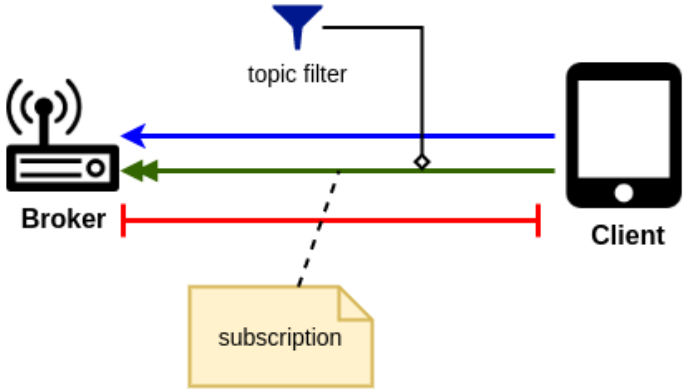
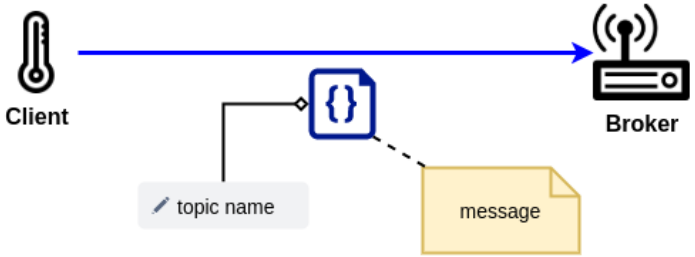
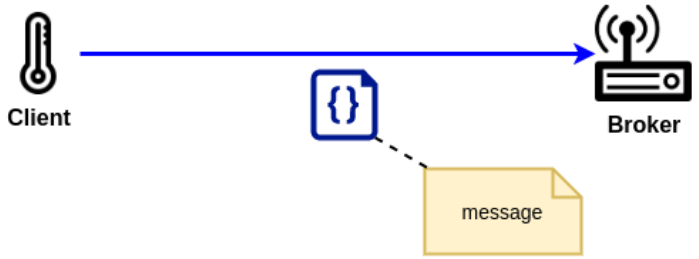
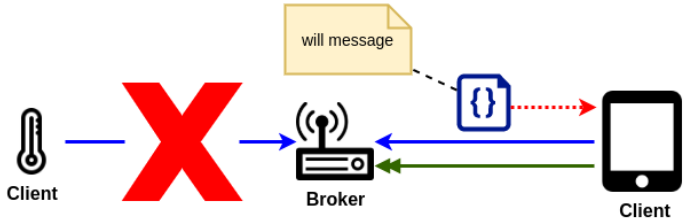
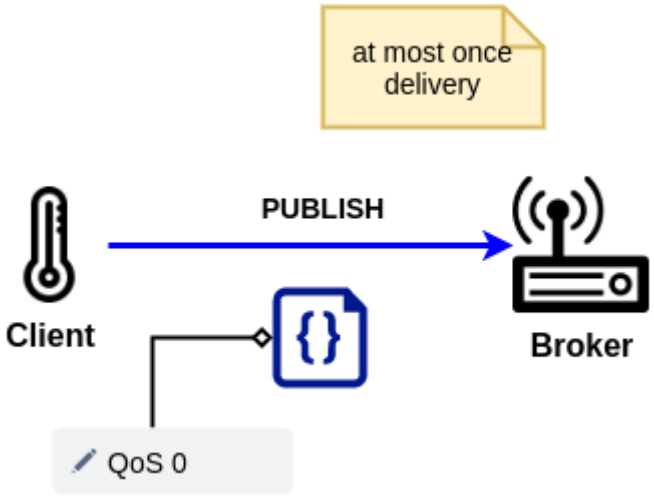
MQTT Overview

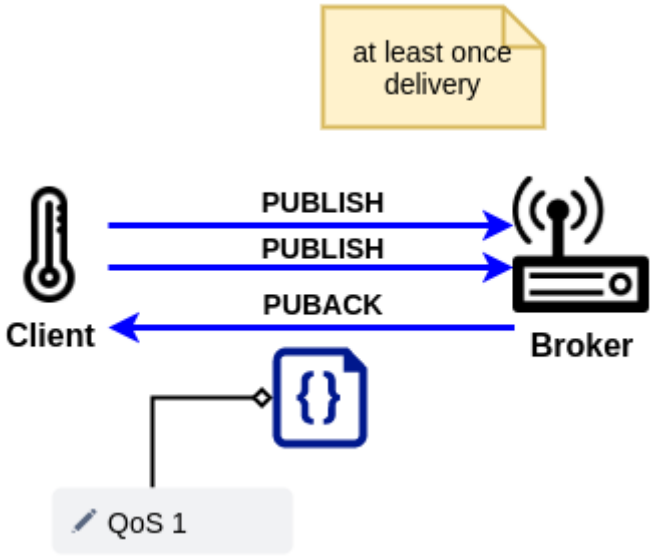


Term	Explanation	Diagram
Client	A **program** or **device** that uses MQTT. Client: • opens the Network Connection to the Server • publishes Application Messages that other Clients • subscribes to request Application Messages • unsubscribes to remove a request for Application Messages • closes the Network Connection to the Server	

Term	Explanation	Diagram
Server (Broker)	A program or device that acts as an intermediary between **Clients** which publish **Application Messages** and Clients which have made **Subscriptions**. Server: • accepts Network Connections from Clients • accepts Application Messages published by Clients • processes Subscribe and Unsubscribe requests from Clients • forwards Application Messages that match Client Subscriptions • closes the Network Connection from the Client	
Connection	Connects the **Client** to the **Server**. Provides the means to send an ordered, lossless, stream of bytes in both directions.	
Session	A **stateful** interaction between a **Client** and a **Server**. Some Sessions last only as long as the Network Connection, others can span multiple consecutive Network Connections between a Client and a Server.	

Term	Explanation	Diagram
Subscription	Subscription comprises a **Topic Filter** and a maximum **QoS**. A Subscription is associated with a single **Session**. A Session can contain more than one Subscription. Each Subscription within a Session has a different Topic Filter.	
Topic Filter	An expression contained in a **Subscription** to indicate an interest in one or more **topics**. A Topic Filter can include wildcard characters.	
Topic Name	The **label** attached to an **Application Message** which is matched against the **Subscriptions** known to the Server.	

Term	Explanation	Diagram
Application Message	The **data** carried by the MQTT protocol across the network for the application. When an Application Message is transported by MQTT it contains: • payload data, • a Quality of Service(QoS), • a collection of Properties, • a Topic Name.	
Will Message	An **Application Message** which is published by the **Server** after the **Network Connection** is **broken**.	
QoS 0	**At most once** delivery The message is delivered according to the capabilities of the underlying network. No response is sent by **Sever** and no retry is performed by the **Client**. The message arrives at the **Server** either once or not at all.	

Term	Explanation	Diagram
QoS 1	**At least once** devilery A QoS 1 PUBLISH packet sent by **Client** is acknowledged by a PUBACK packet sent by **Server**. The message arrives at the **Server** once or more times.	
QoS 2	**Exactly once** delivery The **Server** PUBLISH packet acknowledges receipt with a two-step acknowledgement process. For use when neither loss nor duplication of messages are acceptable. There is an **increased overhead** associated with QoS 2.