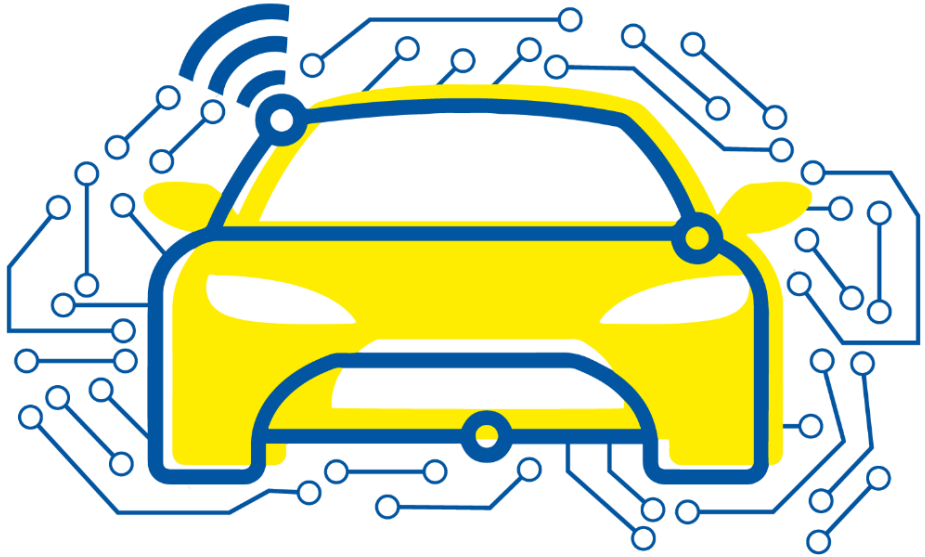
Automated and Connected Driving Challenges

Section 5 – Connected Driving

Collective Cloud Functions

MQTT



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Collective Cloud Functions – MQTT

Message Queuing Telemetry Transport (MQTT)

- **Messaging protocol** for the Internet of Things (IoT)
  - developed at IBM and standardized by OASIS
- Communication via **publish/subscribe messaging pattern** (similar to ROS)

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Collective Cloud Functions – MQTT

Message Queuing Telemetry Transport (MQTT)

- **Messaging protocol** for the Internet of Things (IoT)
  - developed at IBM and standardized by OASIS
- Communication via **publish/subscribe messaging pattern** (similar to ROS)
- Simple and **small message header**
  - Also suitable for non-ideal network conditions: **low bandwidth** and **high latency**
- All data is sent via a centralized instance: the **broker**
  - **mosquitto** is a popular broker implementation

➡ Used in a wide variety of industries, such as **automotive**, manufacturing, telecommunications, IoT

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Collective Cloud Functions – MQTT

MQTT-based Collective Cloud Functions

- **Broker**: runs on server that is responsible for collective cloud functions
  - Sends/Receives data to/from connected entities and collective functions
- **Clients**: devices that publish and subscribe to topics shared by the broker
  - Connected vehicles, smart infrastructure, and cloud server (collective functions)

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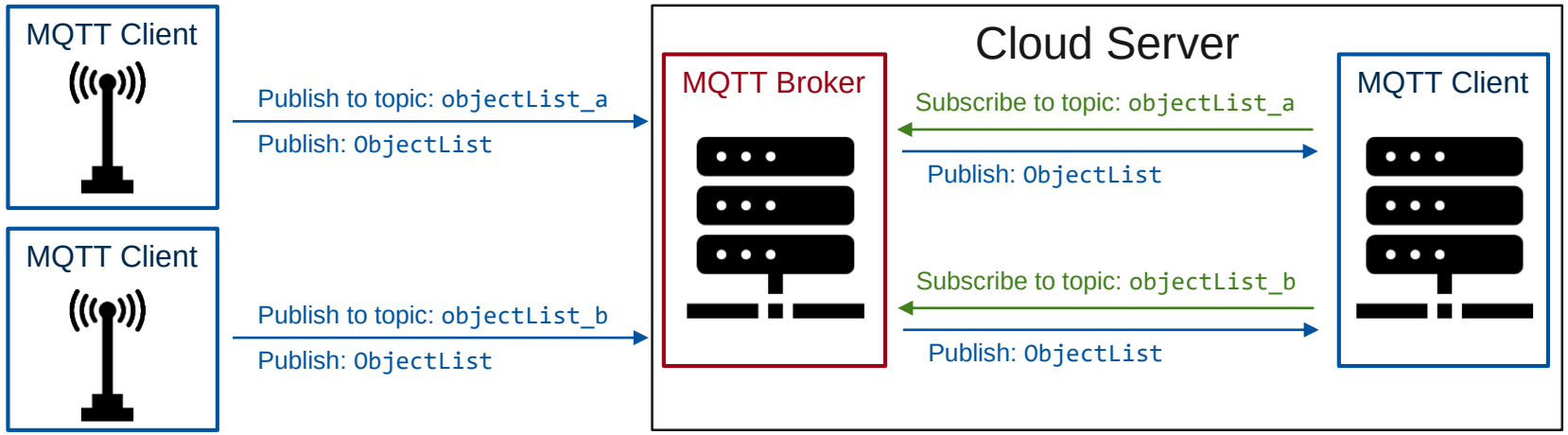

- **Quality of Service** (QoS):
  - QoS 0 (at most once), QoS 1 (at least once), QoS 2 (exactly once)

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