WEBINAR

MQTT: The Key to Scalable Reliable Connected Car Platforms

WELCOME

Christian Götz

CEO and Co-founder of
HiveMQ

- **HiveMQ – Founded in 2012,** based outside of Munich
- **130+ customers** with production IoT applications
- Awarded with **Deloitte Fast 50**, **10 most innovative IoT companies to watch** in 2018, **Focus Growth Champions 2020** and others

50 Technology Fast 50 2018

10 MOST INNOVATIVE IoT COMPANIES TO WATCH IN 2018

GERMAN ACCELERATOR®

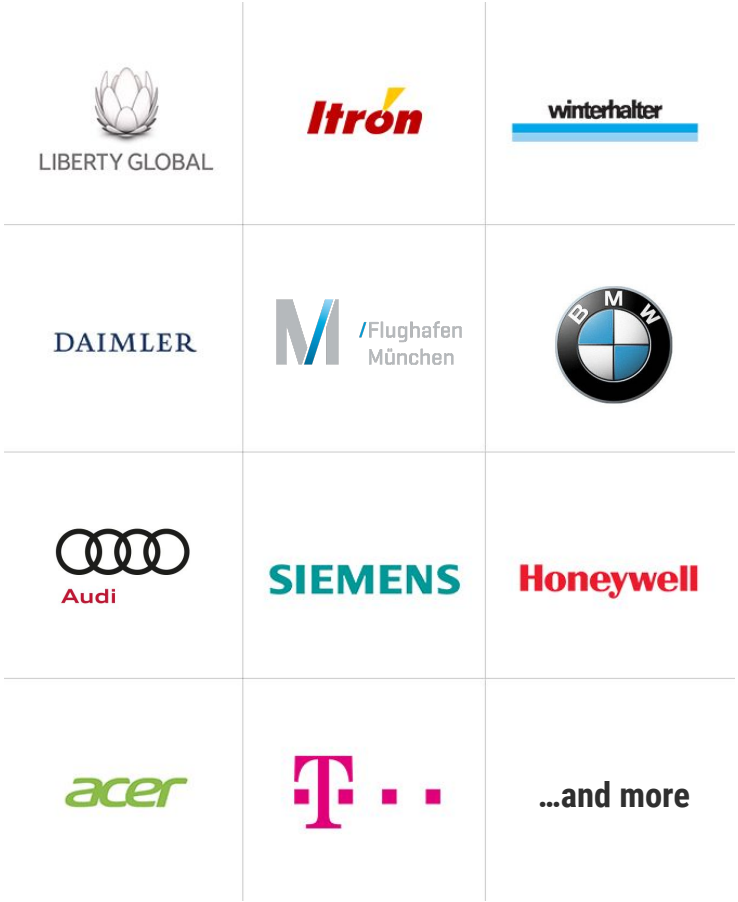
MQTT.ORG
OASIS MQTT TC
Helped standardize IoT Standard

iot eclipse.org
Eclipse IoT working group
Member

FOCUS WACHSTUMS-CHAMPION 2020

Our customers are...

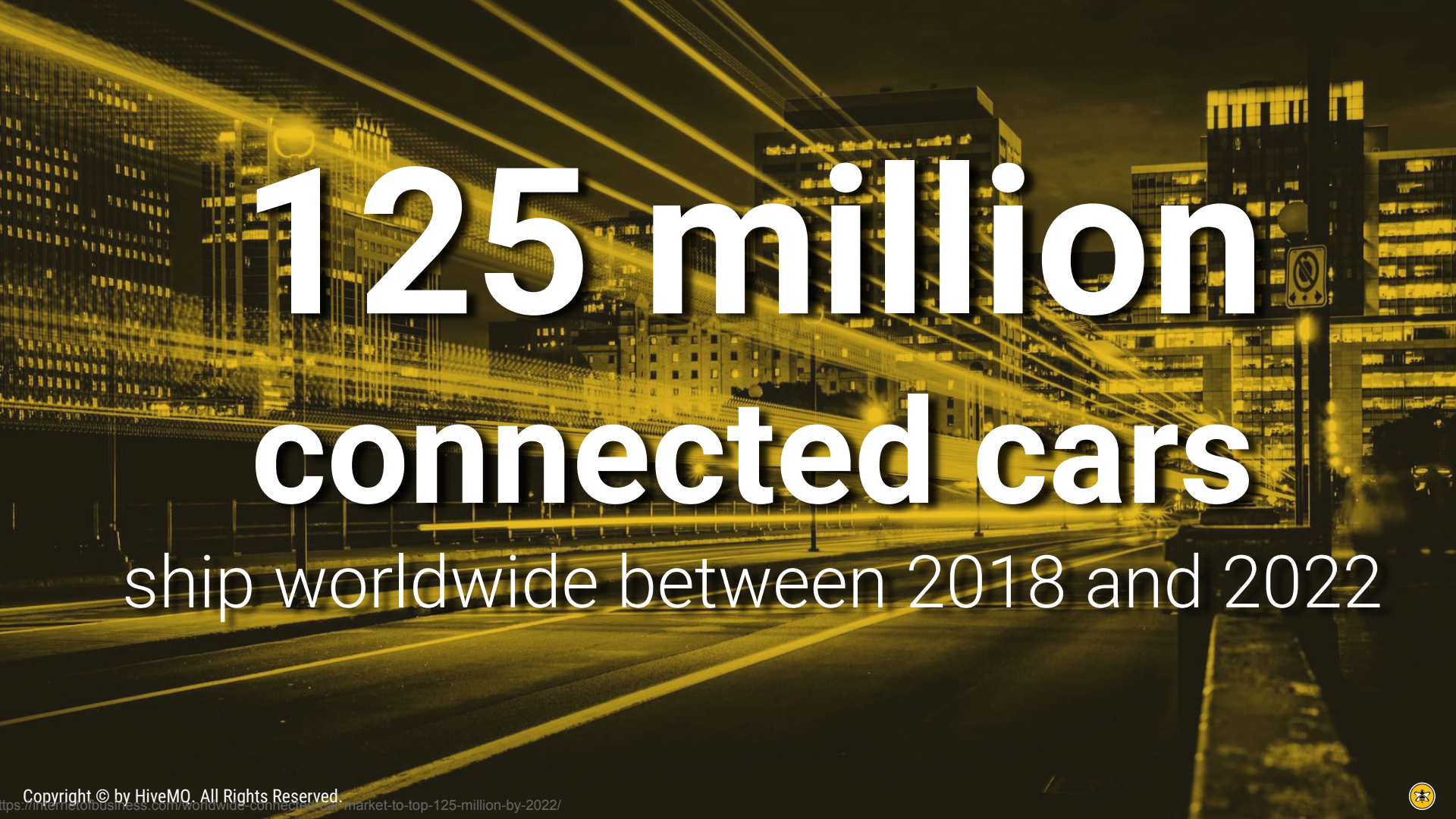
- Building new digital products
- Improving customer experience
- Creating more efficient operations & insights



Automotive Customers

- Connected car platforms
- Car sharing services
- Connected car services

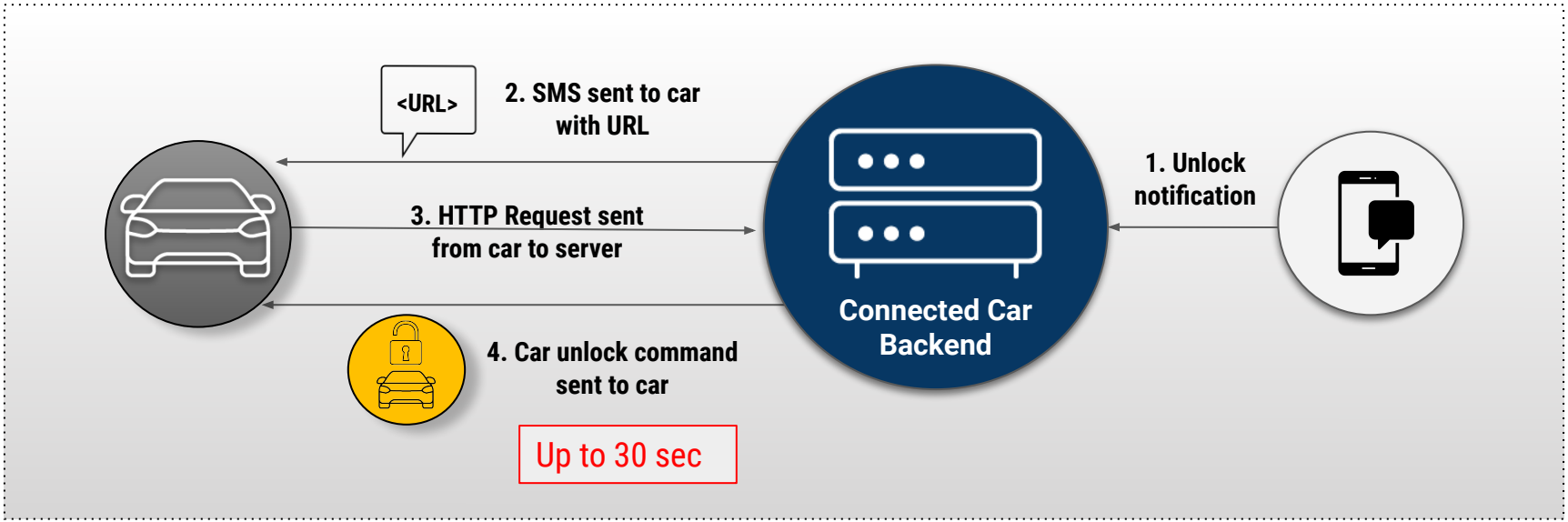

How to Build a Reliable
Connected Car Platform with
MQTT



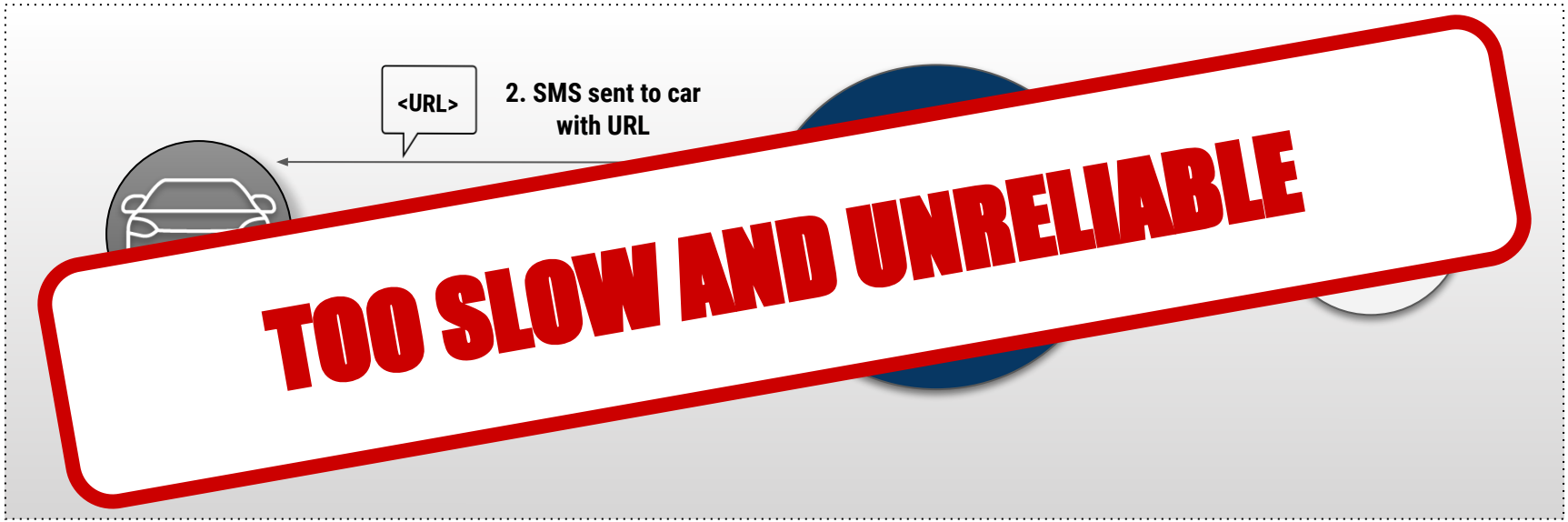
https://internetofbusiness.com/worldwide-connected-car-market-to-top-125-million-by-2022/


Telekom.de LTE
13:46
79 %
722 km
TOTAL RANGE
57 L
FUEL LEVEL
Last Updated: 21.06.17, 16:03
Locked
Remote
Status
Info
To activate, press and hold for 2 seconds.
Lock
Unlock
Horn
Lights
Climate Control
Heats or ventilates your BMW depending on the current temperature. This process will last for up to 30 minutes.
To activate, press and hold for 2 seconds.
Vehicle
Destinations
Activity
Hub
More

Current Challenges



Current Challenges



Challenge #1 Unreliable Networks and Network Latency

Challenge #2 Broadcast messages to large fleets of vehicles

Challenge #3 Scaling up to meet demand

Challenge #4 Integration with Enterprise Systems

Challenge #5 Monitor and Troubleshoot Deployments

New Technologies are needed

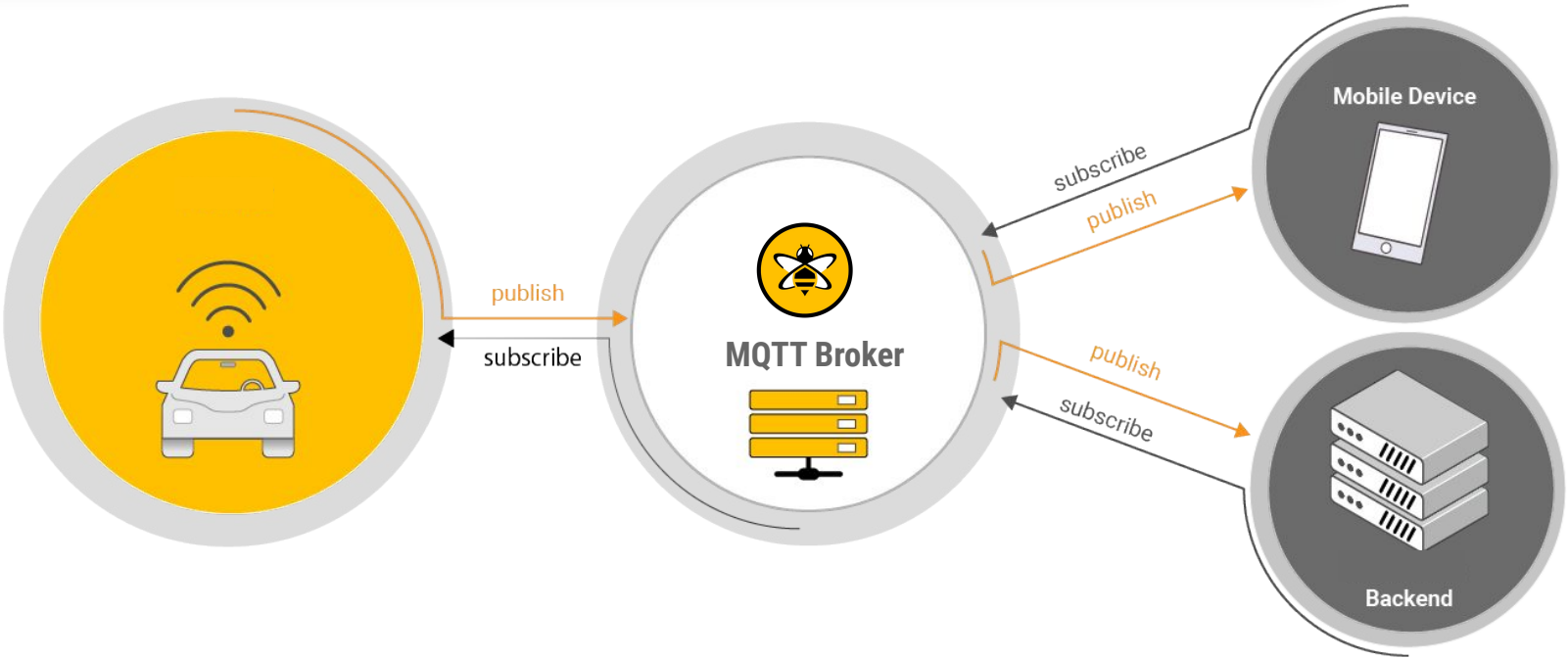
Internet of Humans

Internet of Things

?


Paradigm shift

A New Architecture



Connected Car Protocol: MQTT

- Lightweight, simple client
- Pub/Sub protocol
- Persistent Connections
- Quality of service levels

http://

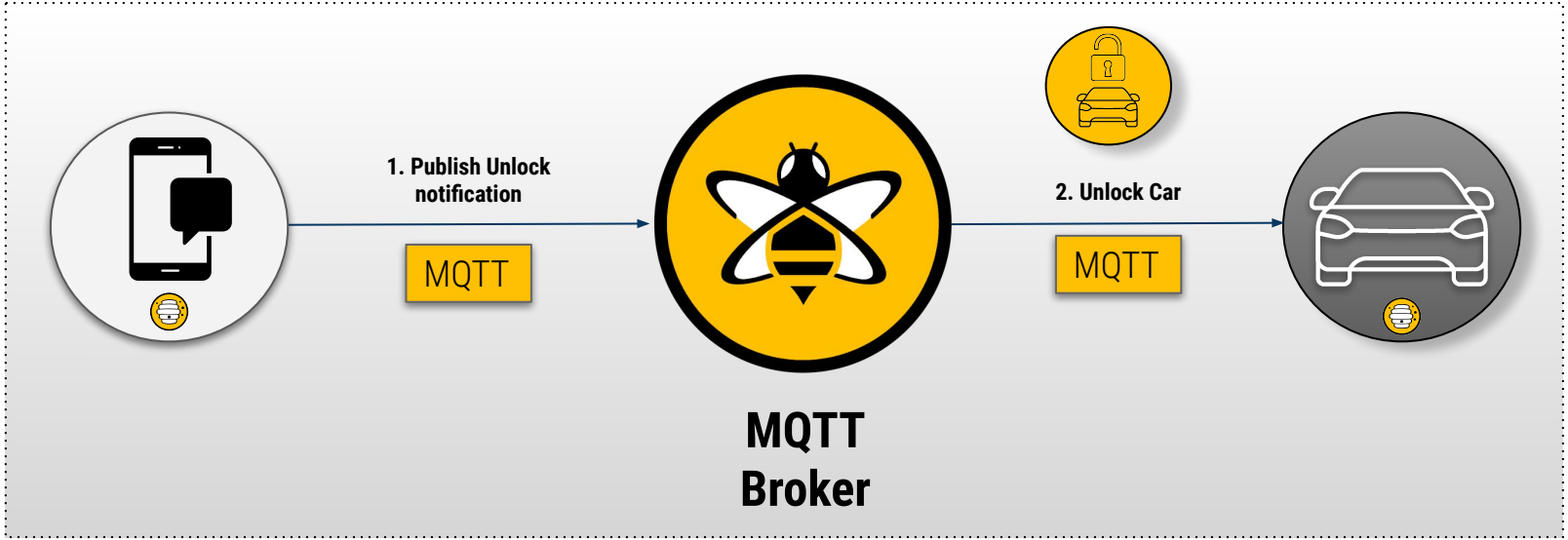
- Request/Response handshake for each connection
- No ability for bidirectional
  - SMS is used but is unreliable
- No quality of service
- No queuing of messages for lost connection

New Technologies found

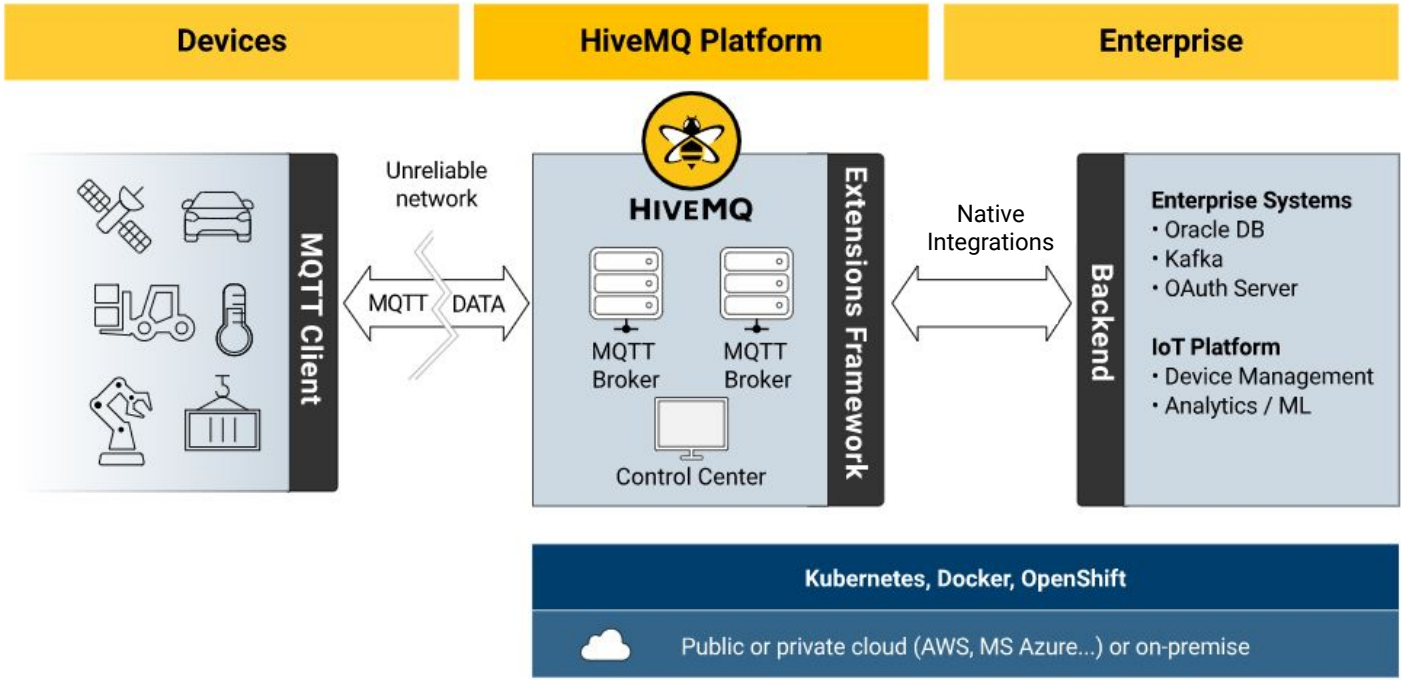
Internet of Humans

Internet of Things

Remote Door Unlock with MQTT

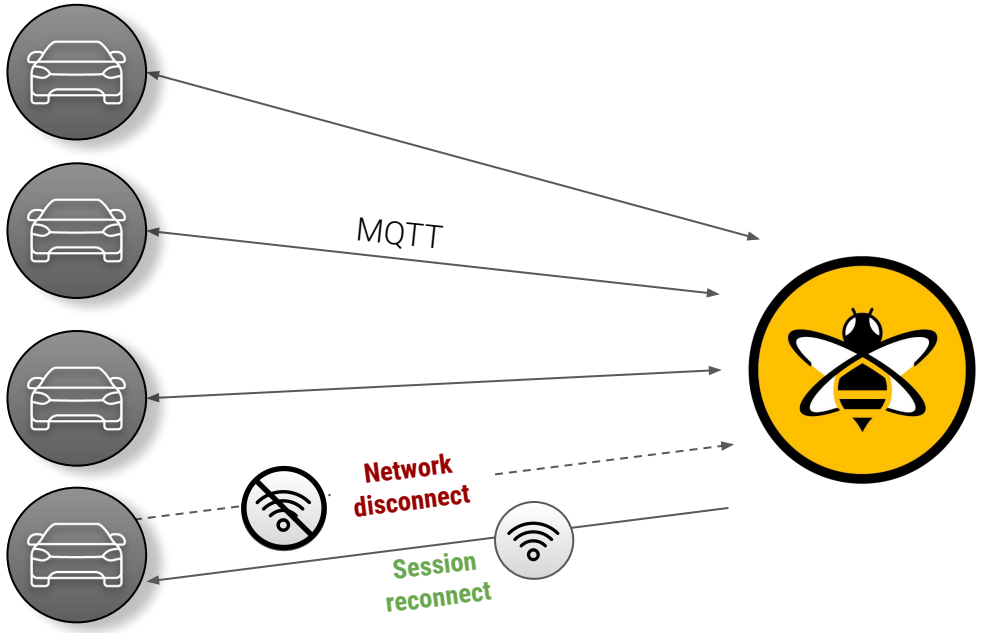


Enterprise MQTT Platform



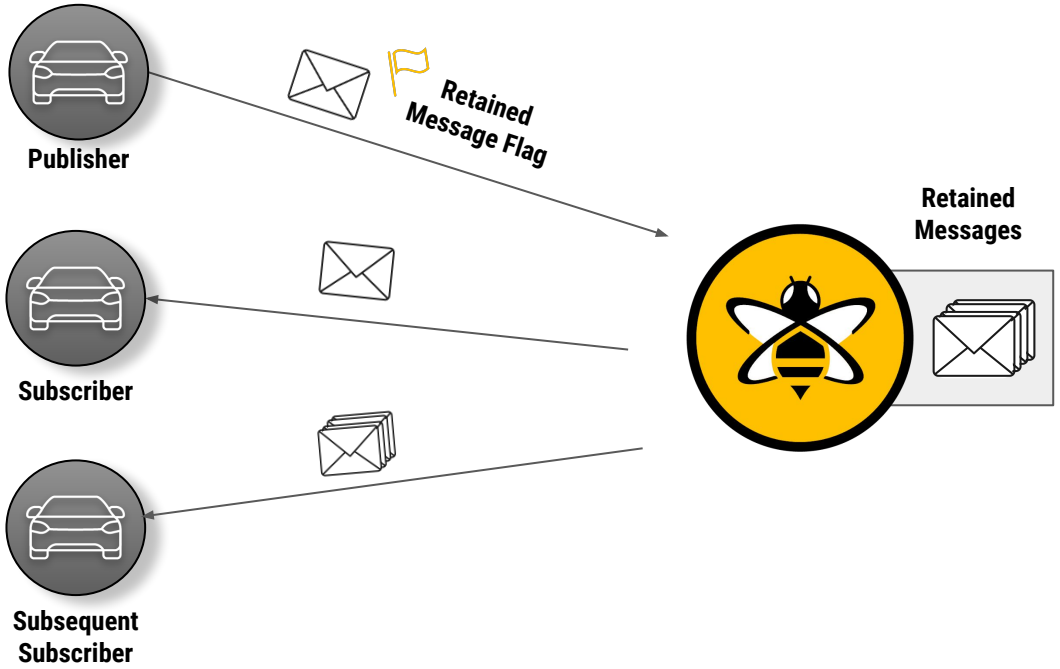
10mio+ Persistent Always-on Connections

- Persistent sessions
- Reconnect after network disconnect
- Bi-directional communication
- Massive scalability



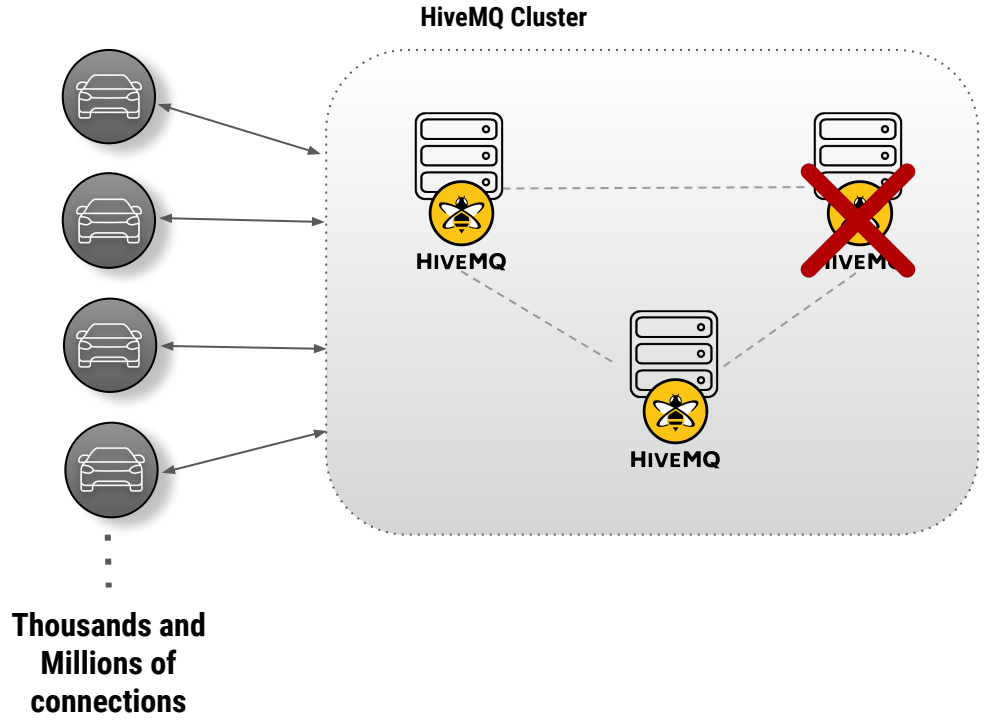
Guaranteed and Reliable Data Delivery

- Quality of Service messaging
  - At most once (0)
  - At least once (1)
  - Exactly once (2)
- Retained Messages
- Offline queued messages

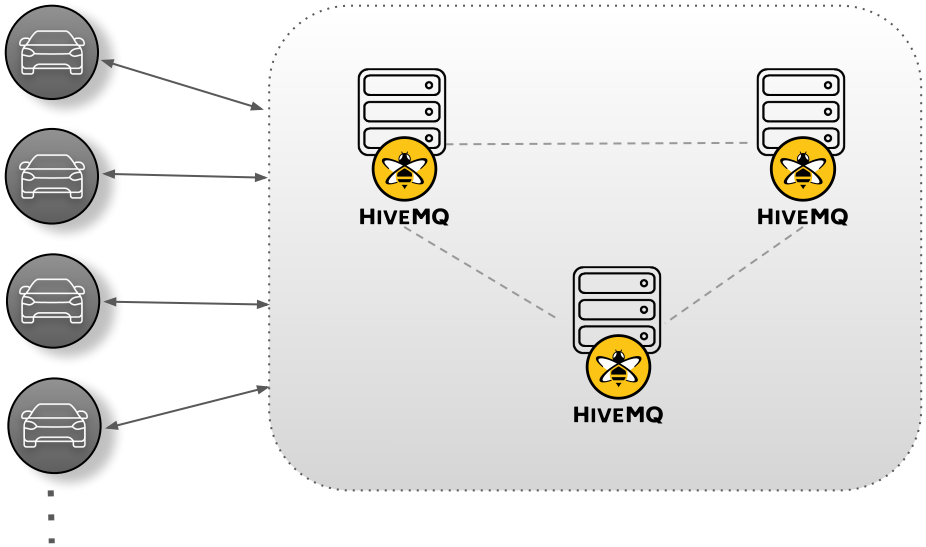


Elastic Scalability and Auto Heal

- Automatically scale up and down
- Connections distributed across clustered nodes
- Masterless cluster architecture so end user doesn't experience latency if cluster node is down



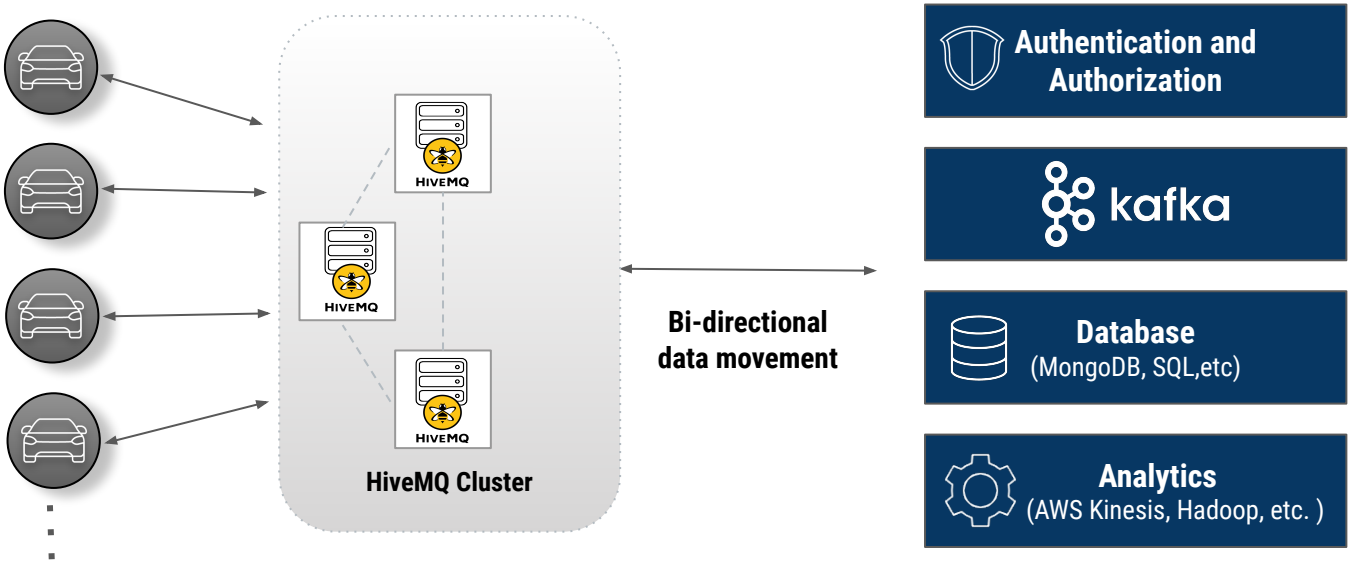
Cloud Neutral Deployment



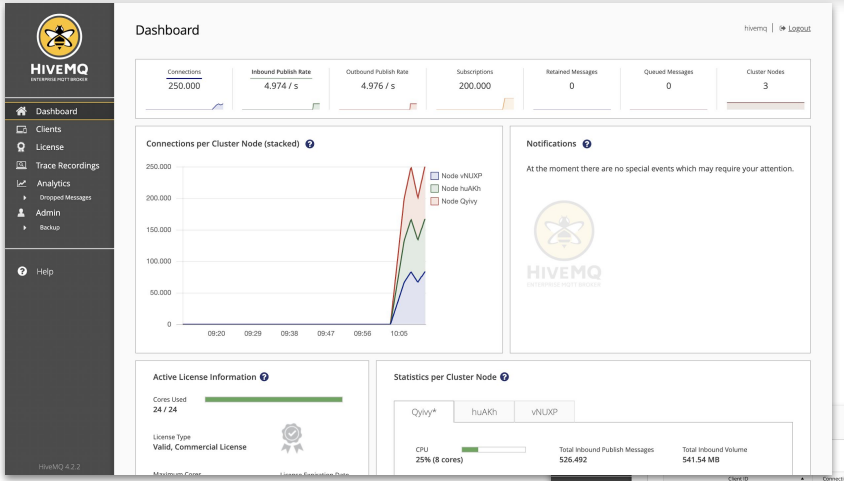
- Cloud
- Container
- Managed service
- VM
- Bare metal

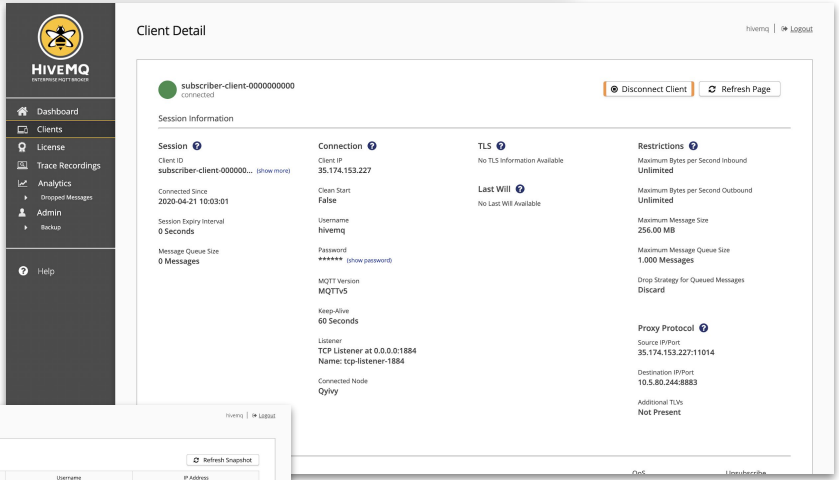
etc.

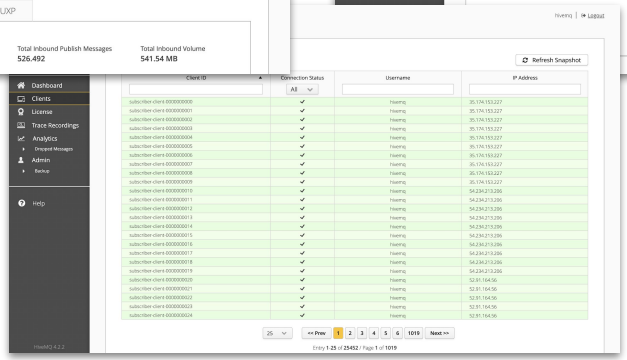
Open API and Extension Framework



Observability and Insights from Operations







HIVEMQ

HiveMQ for Connected Cars

- 10 mio+ Persistent Always-on Client Connections
- Guaranteed and Reliable Data Delivery
- Elastic Scalability and Auto Heal
- Cloud Neutral Deployment
- Open API enables Custom Integration for Enterprise requirement
- Observability and Insights for Operations

ECARX Case Study

Independently operated by Geely Holding Group

- **Key Challenge:**
  - Manage connectivity between car and cloud
- **What HiveMQ provided:**
  - Latest MQTT standard, especially MQTT 5
  - MQTT 5 has improved the reliability of overall system
  - Extension framework for easy message flow of MQTT connection

ECARX
亿 咖 通 科 技

Result

- **2 million Geely cars connected**
- **Average of 350,000 simultaneous connections**
- **30% cost reduction**

HIVEMQ

HiveMQ: The Standard for Connected Car

OEM

DAIMLER

Third Party Platforms

Suppliers

Expect to have more than 50% of automotive OEMs using HiveMQ by 2022

Additional Resources

HiveMQ Automotive Solutions and Case Studies

https://www.hivemq.com/solutions/automotive/

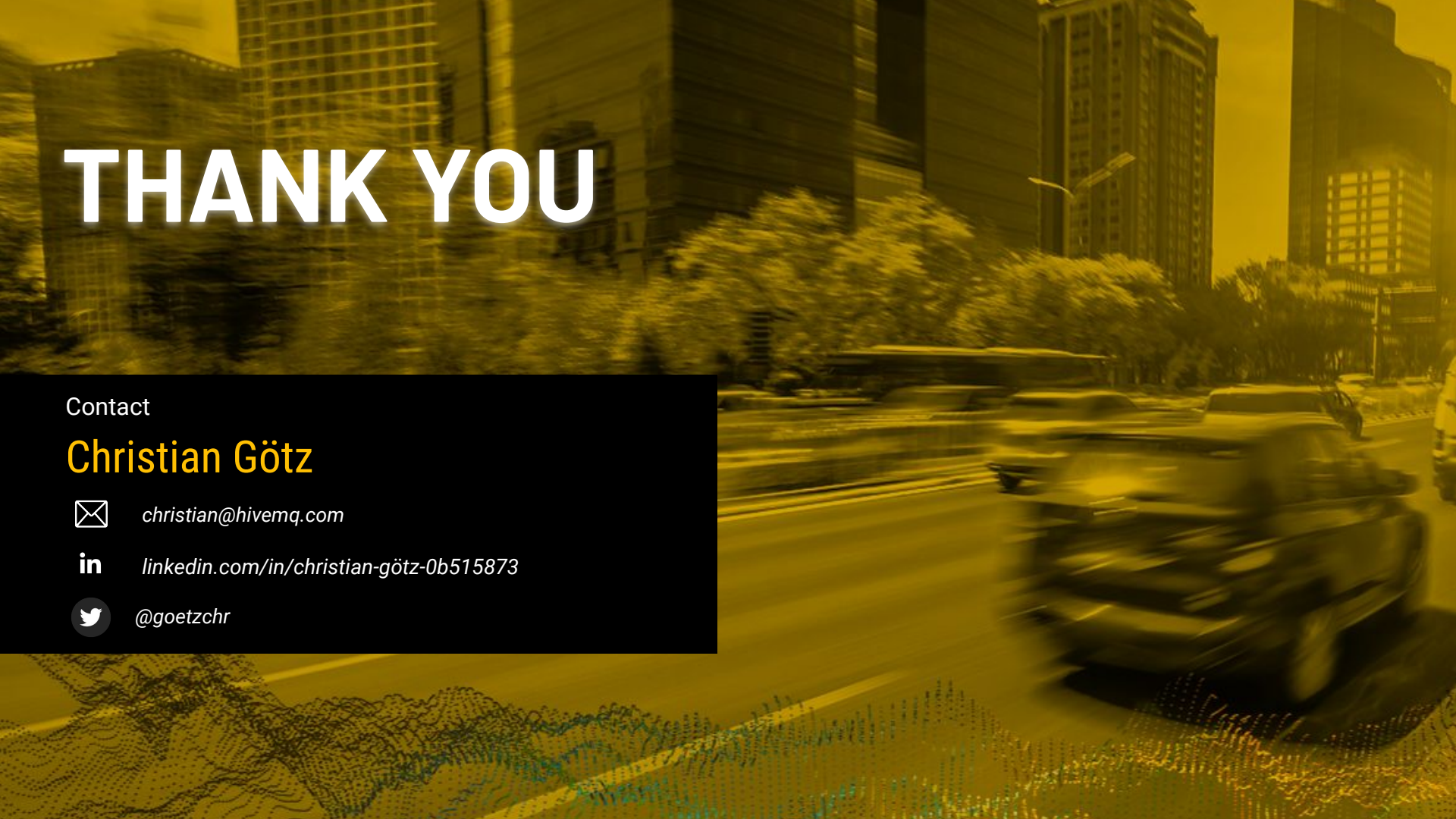
Enabling the Connected Car White Paper
https://www.hivemq.com/solutions/iot/enabling-the-connected-car/

Try HiveMQ Cloud - 7 days for free!

https://www.hivemq.com/cloud/

Try HiveMQ!

https://www.hivemq.com/downloads/



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