# Learn To Connect All Of Your Assets And Reliably Collect Your Industrial Data

Speaker: Dominik Obermaier, CTO and Co-founder of HiveMQ

# Speaker


## Dominik Obermaier

CTO and Co-Founder of HiveMQ

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# Introduction to HiveMQ

- **Founded in 2012,** based outside of Munich
- HiveMQ helps move data to and from connected devices in a efficient, fast and reliable manner
- **130+ customers** with production IoT applications

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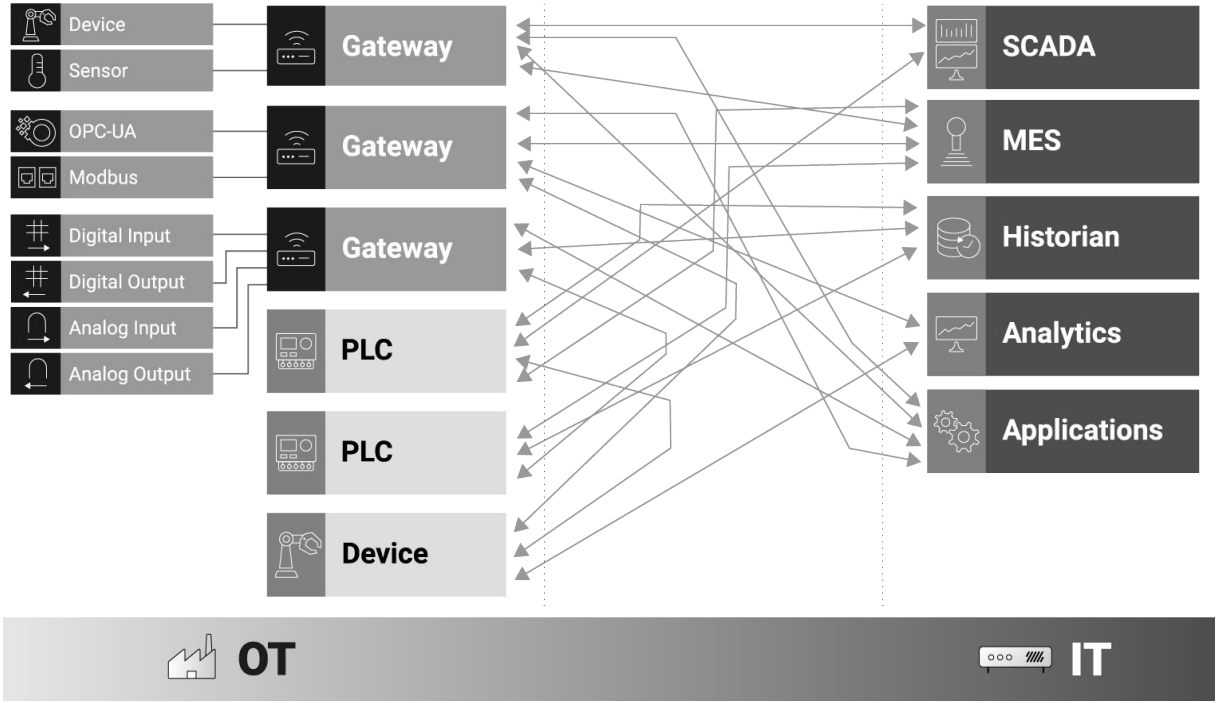
# Lots of Data Silos

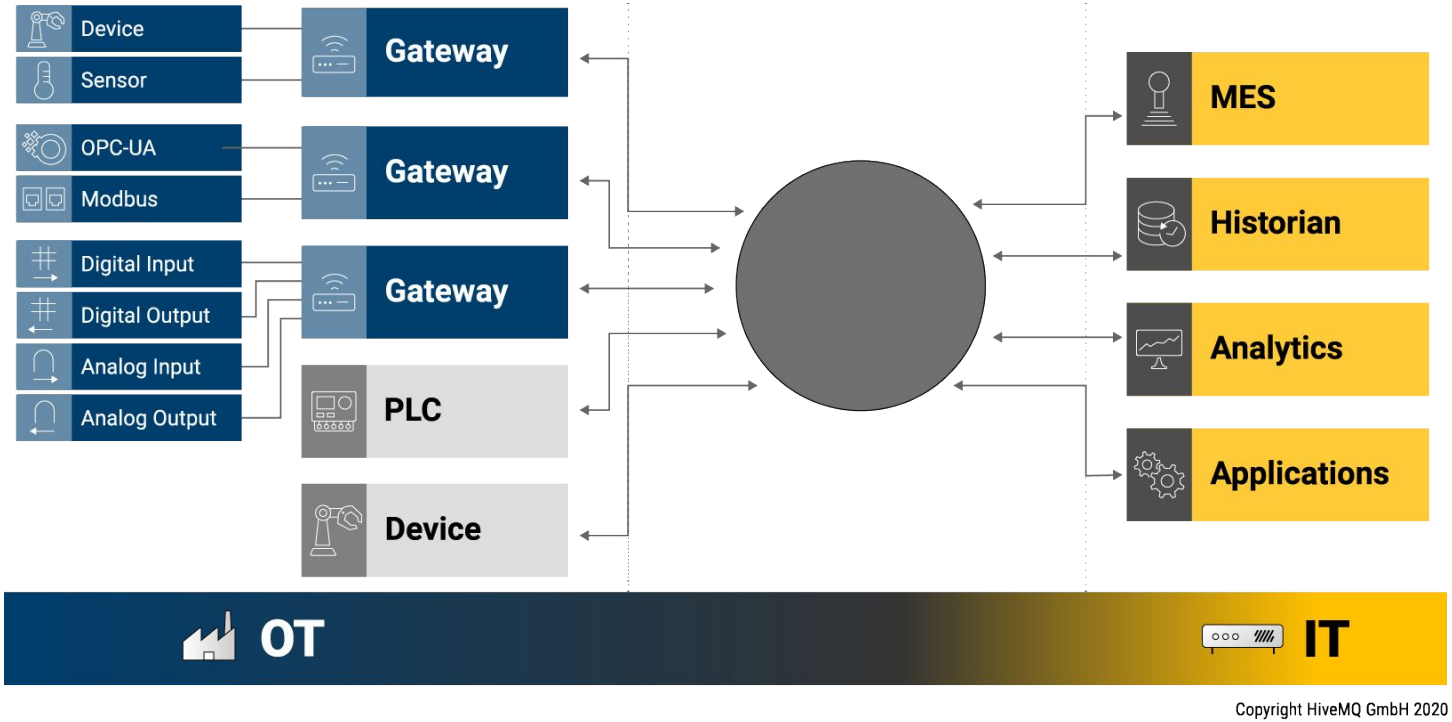
# Siloed OT Systems - No Interoperability



# Challenges

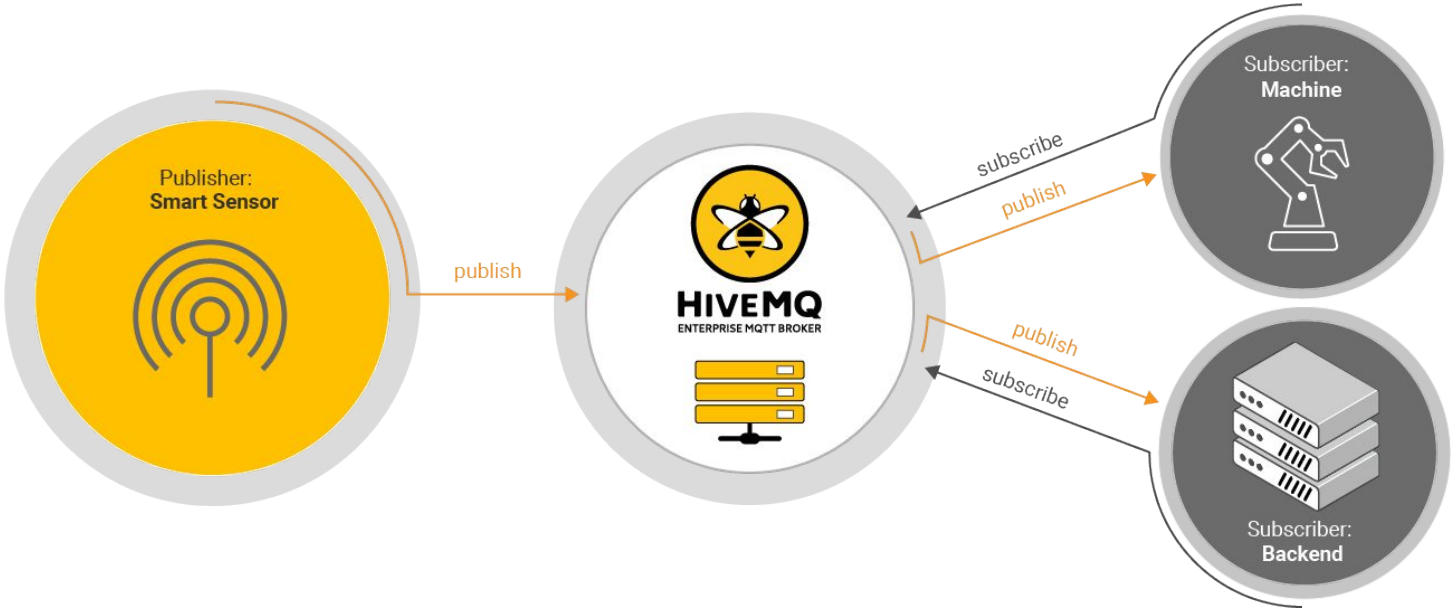
- Difficult to change workflows and processes
- Difficult to setup a new system/facility
- Difficult to analyze data across the entire system

# Decoupled Architecture




- Decoupled clients and broker
- Publish/Subscribe protocol
- Extensible
- Reliable

# Pub/Sub Pattern



# But There Are Still Issues

- Devices and endpoints have different topics, payloads and data structures
- Applications assuming specific formats and structure
- Data agnostic - payload must be interpreted but no context

# INTRODUCING

# Sparkplug

A simple, open specification, that will enable plug and play interoperability between IIoT devices and IIoT applications.

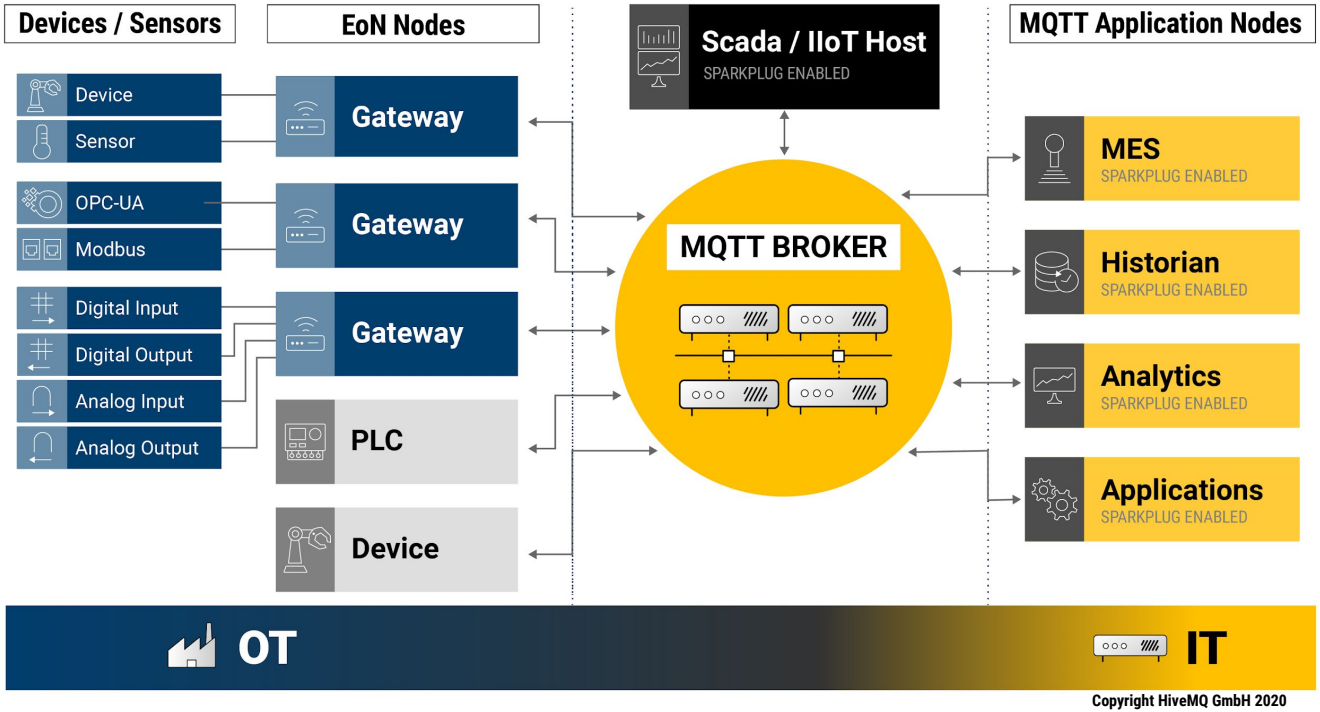
## Sparkplug Defines:

- Topic namespace
- Data Model and Structure
- Extensible process variable payload
- Defines MQTT state management


# KEY CONCEPTS

- Continuous Session Awareness
- Report by Exception
- Interoperability by consistent data format
- Auto Discovery

# MQTT Sparkplug Architecture



# SCADA / IIoT Host

- Application responsible for monitoring and control MQTT EoN node
- Maintain continuous session state awareness of all participants (machines, devices, PLCs, sensors, gateways and applications)
- Not responsible for establishing or maintaining connections directly to the device
- In Sparkplug, devices, EoN and SCADA/ IIoT Host connect to central MQTT broker to publish and subscribe to data; allowing report by exception

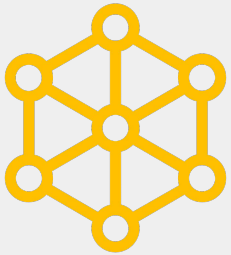
# EDGE OF NETWORK (EoN) NODES

- EoN provide physical and logical gateway function for devices that don’t implement Sparkplug
- EoN manage the state and session of itself and the connected sensors
- EoN allows devices that implement protocols like OPC-UA, Modbus, and proprietary PLC to connect to a Sparkplug architecture

# DEVICES/ SENSORS

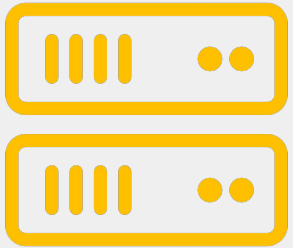
- Devices and sensors are the key endpoints in any industrial automation system
- Devices and sensors connect with EoN that bridge the data from these devices into the Sparkplug protocol

# MQTT APPLICATION NODES



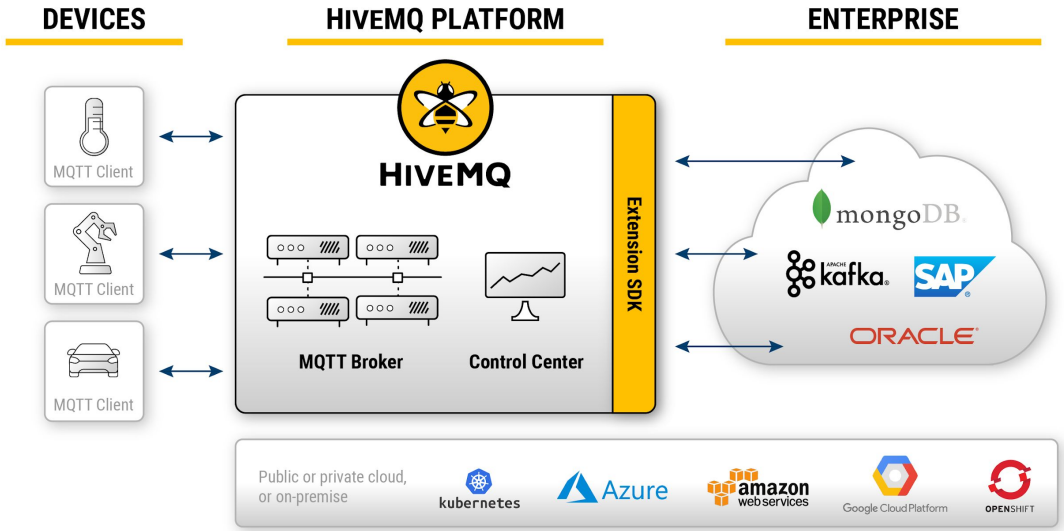
- MQTT Application Nodes can produce and consume Sparkplug messages but don’t act as a SCADA / IIoT Host.
- Typically Application Nodes are MES, Historians, Analytics systems

# MQTT BROKER



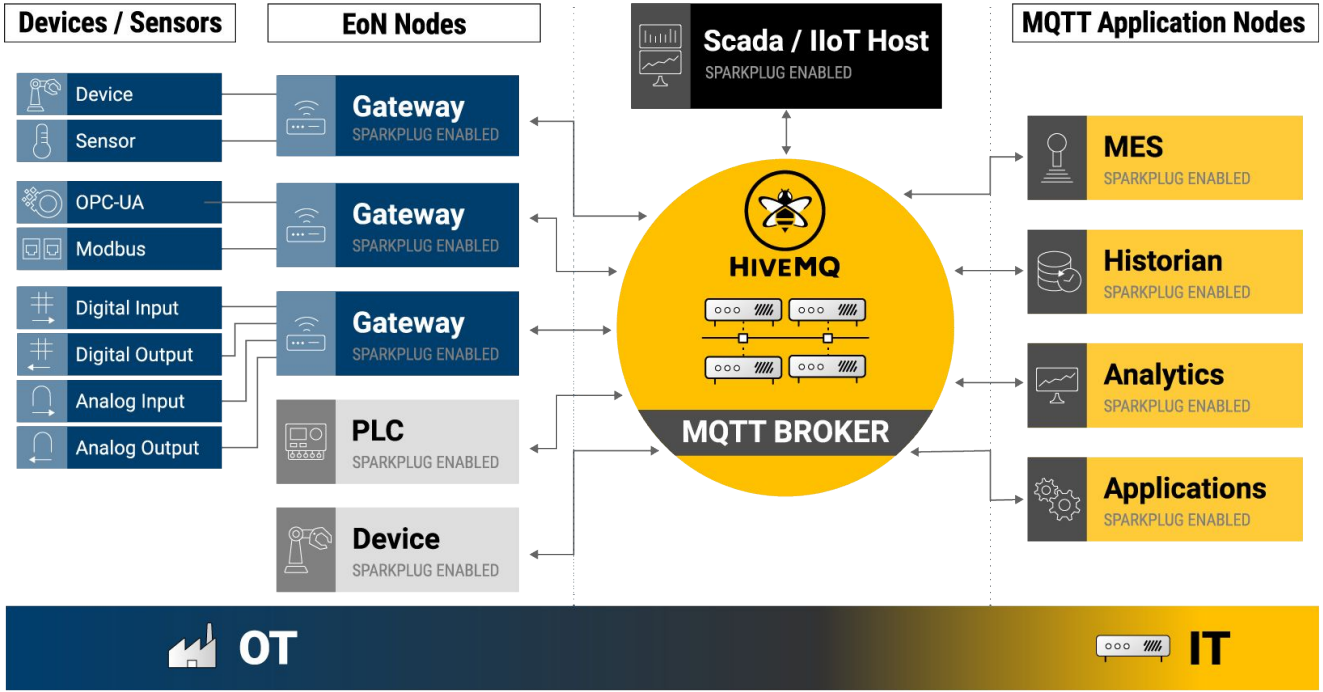
- MQTT broker is the central data distribution point in a Sparkplug architecture
- MQTT broker requirements:
  - 100% compliant to MQTT 3.1.1
  - Requires features like Retained Messages, Last Will and Testament and QoS
  - Not all MQTT brokers support these features: MS Azure IoT Hub and AWS IoT can’t be used with Sparkplug

# HiveMQ MQTT Platform




- High availability
- 100% MQTT compliant
- Scalability
- Observability
- Enterprise Security
- Integration with OT/IT Systems

# MQTT with Sparkplug Architecture



# Resources


Contact HiveMQ: sales@hivemq.com

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

Try HiveMQ Cloud: https://www.hivemq.com/mqtt-cloud-broker/

Get MQTT Essentials E-Book: https://www.hivemq.com/download-mqtt-ebook/

# Next Steps


[Get a Copy of Sparkplug Essentials E-Book]

# ANY QUESTIONS?

# THANK YOU

## Contact Details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