

# Mittelstand Maschinenbau: Edge als maßgeschneiderte Lösung

Erfolgsfaktoren bei der Nutzung der Cloud-  
to-Edge-Optionen

deutsche ict + medienakademie, Hürth,  
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Uwe Schnepf, Leiter Produktmanagement Industrial IoT  
Hilscher Gesellschaft für Systemautomation mbH

# Hilscher auf einen Blick

## Reliable business

- Family-owned Company in 2nd Generation
- 35 years of industrial network expertise
- 420 employees W/W

## Financial stability

- >100MEur revenue in 2023 (exp.)
- Double digit EBIT
- 16% CAGR in last 5 years

## Continuous Growth

- Over 21M installed Nodes based on netX
- >1300 active products
- 250+ Projects in last 10 years

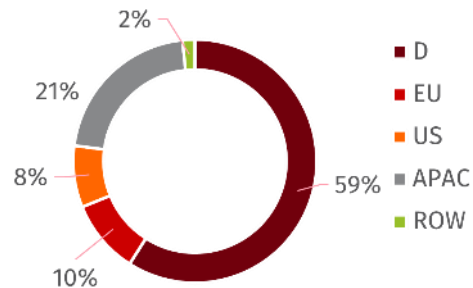
## Our Expertise



## Innovation



## Global Presence



## Close to Customers

- Global sales, support and distribution network
- More than 3000 customers
- Alliances with leaders

## Quality

- ISO9001 certified
- ISO 14001 certified
- QMS System
- ISO27001 planned

# Hilscher Portfolio Details

## netX Chip Platform

- ARM-based Multi-protocol network controller family
- Protocol stacks for all network systems
- Development boards and Eclipse IDE



## Module variants

- Ready-made hardware for easy integration into customer products
- Flexibility: Loadable communication stacks



## PC Cards

- Wide range of form factors (M.2, PCI, PCIe, ...)
- Best fit for Industrial PCs and controls



## Gateways

- Easy Connection of different network standards
- IP67 IO Bricks as brandlabel
- IP67 IOL Wireless solution



## netField

- Advanced fleet and device management
- Edge Gateway portfolio for OT Data access
- On-premise or Cloud solution
- OI4 data model





# Herausforderungen des Produzierenden Gewerbes

- Deutsche Maschinenbauer und Anlagenbetreiber stehen vor großen Herausforderungen
- Der Fachkräftemangel beeinträchtigt ihr Innovations- und Service-Potenzial
- Massive Konkurrenz aus Fernost drücken auf Erlöse und Marktanteile
- Vor diesem Hintergrund planen diese Firmen die Vernetzung ihrer Maschinen und Anlagen, um...
  - einen **besseren Service** anbieten zu können.
  - **smarte Produkte** entwickeln zu können.
  - **neue, datengetriebene Geschäftsmodelle** aufbauen zu können.



# Vertical Integration for Industry 4.0 / Industrial IoT

## Vertical Integration for:

Condition Monitoring

Remote Service

Predictive Maintenance

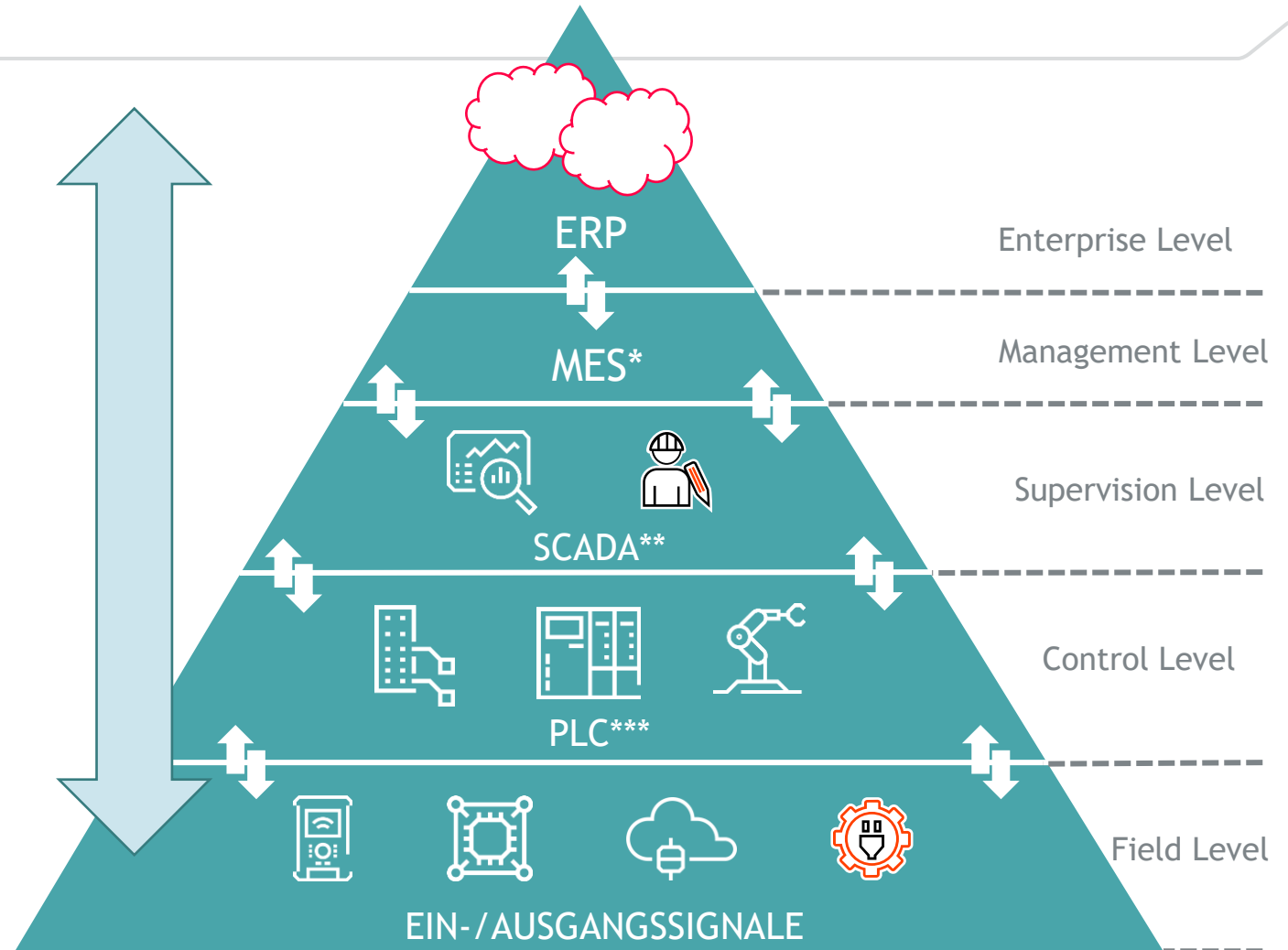
Machine Learning

Smart Control

Smart Service

Pay-per-Use

## Edge Computing

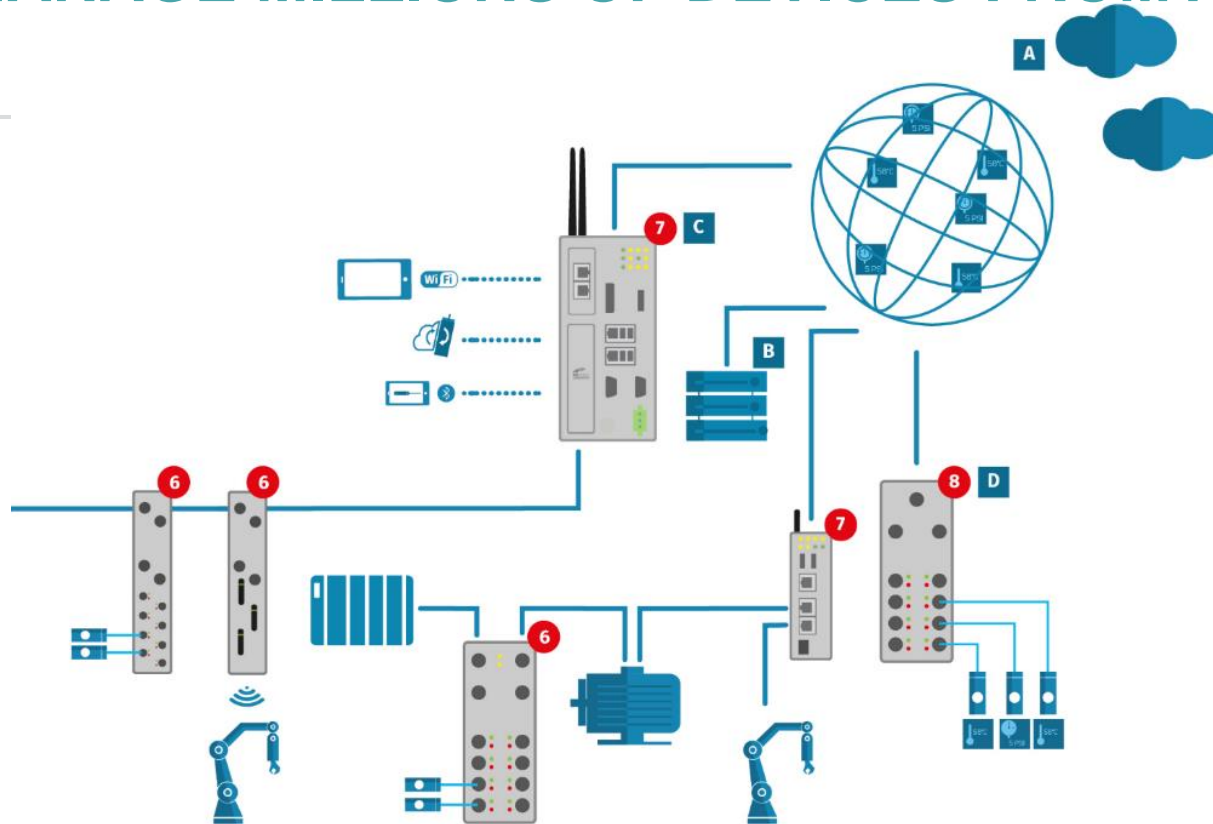


\* Manufacturing Execution System

\*\*Supervisory Control And Data Acquisition

\*\*\*Programmable Logic Controller

# MANAGE MILLIONS OF DEVICES FROM ANYWHERE. netFIELD.



- A netFIELD Cloud**  
remote device and app management
- easy data access by Rest API
  - Custom white-labeling available

- B netFIELD OS**  
local device and management (opt.)
- secure operation by virtual machine
  - automatic device onboarding to netFIELD Cloud

- C netFIELD EDGE**  
fill the gap between OT and IT aligned solutions for different performance classes available
- Real-Time Ethernet support
  - perfectly integrated into netFIELD OS and netFIELD Cloud

- D sensorEDGE**  
connects up to 8 IO-Link sensors directly with the Cloud
- fast and easy auto configuration
  - dashboard visualisation for sensor data

**6 netFIELD Devices (IO-Link)**

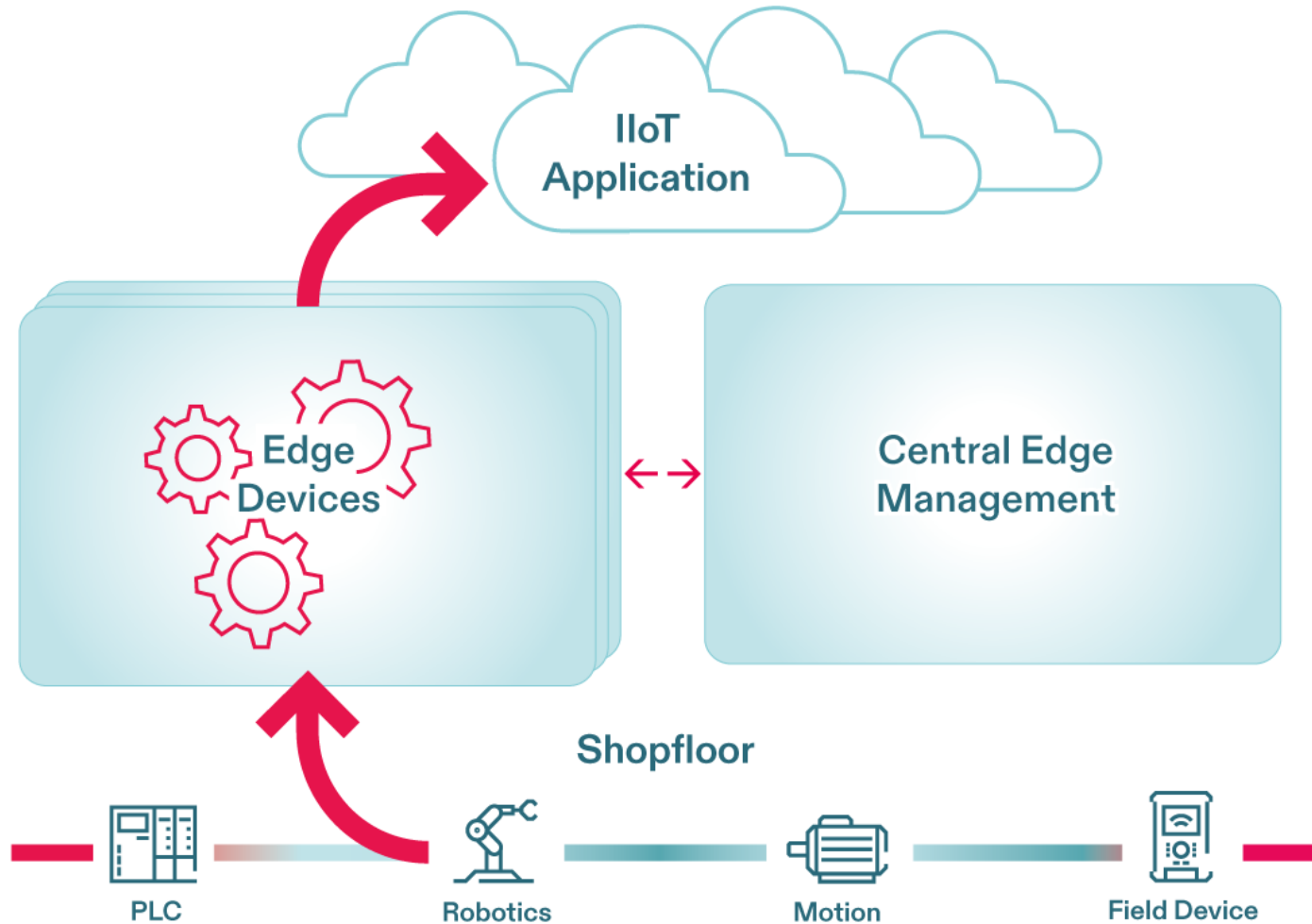


**7 netFIELD EDGE (Gateways)**



**8 sensorEDGE (Gateway)**

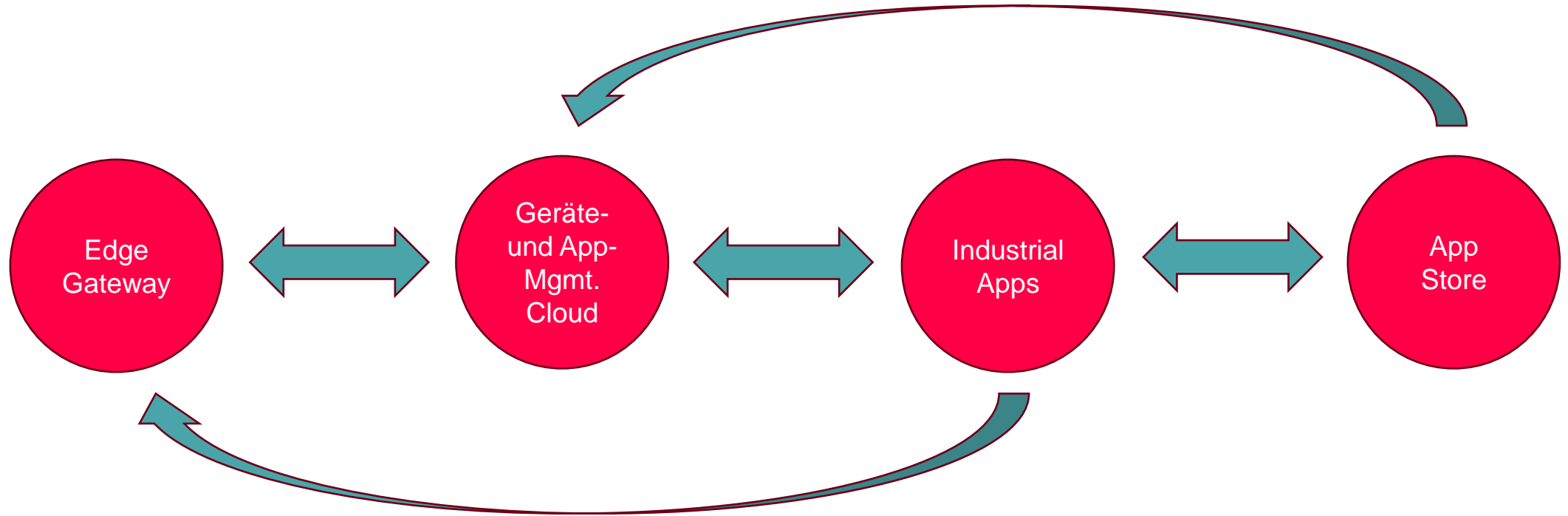




# Industrial IoT als Enabler für diese Veränderungen



# Komponenten für Industrial IoT – From Cloud to Edge





## Enterprise Device and Container Management for Industry 4.0

Bring intelligence to your field devices with netFIELD.io, a hybrid cloud and edge solution for the Industrial IoT.

### The netFIELD.io Difference

Containers are revolutionizing connected IoT devices, and netFIELD.io is the perfect match to manage and run them.



#### INTELLIGENT EDGE

Run intelligence for data acquisition & analytics by deploying containers to your field devices.



#### OPEN PLATFORM

Manage your field devices from a single-point with end-to-end security and powerful open APIs.



#### APPLICATIONS

Use our self-service portal to manage your devices at scale while maintaining ownership.



Device Manager



Fleet Filters



Fleet Jobs



Fleet Rollouts



Organization Manager



netFIELD OS Manager



Container Manager



API Key Manager



Workspace Manager



NT0001C032B04D

- System
- Networking
- Networking Services
- Onboarding
- General Settings
- Standard Docker
- IoT Edge Docker
- Accounts
- Certificate
- Terminal
- System Update
- Logs
- Services

netFIELD App IO-Link Configurator

netFIELD App Platform Connector

Hardware [Details](#)

Model Name NFX8M-D2-N32-010

Hardware ID 000001918010-000000021615

Operating System [netFIELD OS v2.3](#)

Secure Shell Keys [Show fingerprints](#)

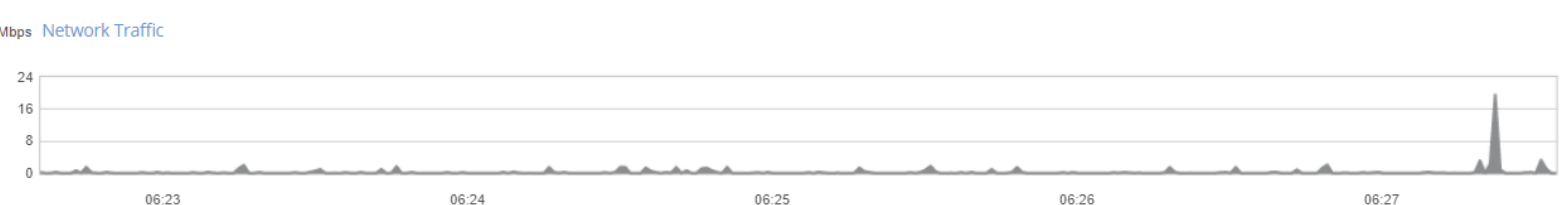
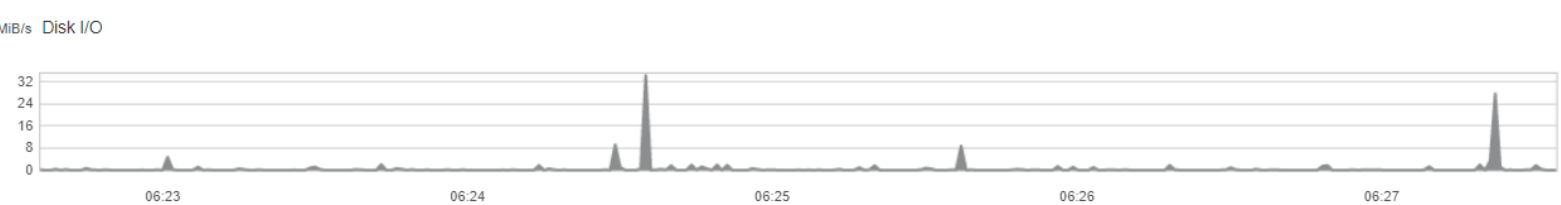
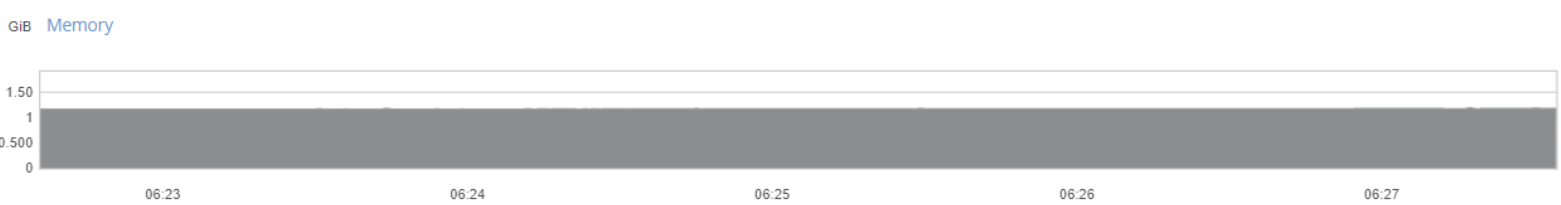
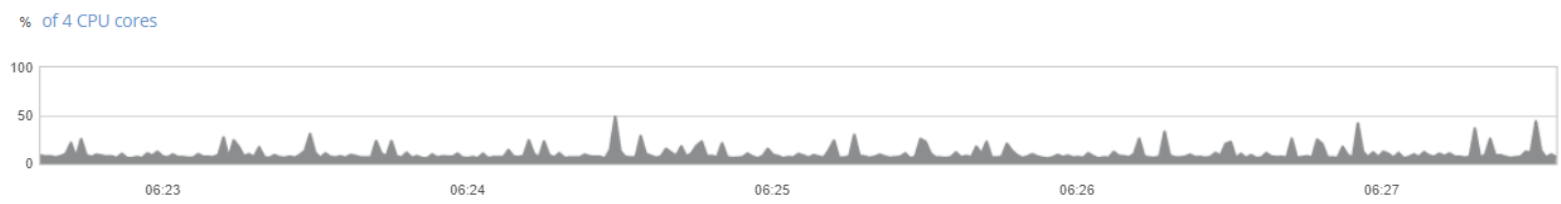
Host Name NT0001C032B04D (nt0001c032b04d)

System Time [2023-05-23 04:27](#) ⓘ

Last Reboot 2023-05-23 04:13

Power Options 

Restart ▾





NT0001C032B04D

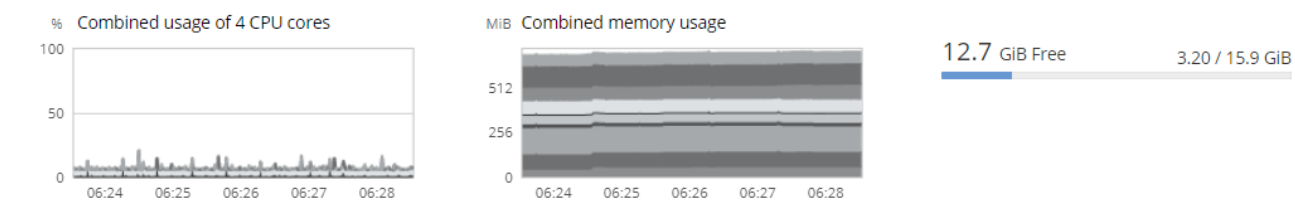
- System
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netFIELD App IO-Link Configurator

netFIELD App Platform Connector

Images and running containers ▾

Type to filter...



Containers

Name	Image	Command	CPU	Memory	State
> grafana	grafana/grafana:8.1.2	/run.sh			running
> node-red-for-compact-edge-gateway-special-edition	epcontainerregistrydevelopment.azurecr.io/nodered:latest	./entrypoint.sh run debug -- --userDir /data			running
> netfield-app-io-link-configurator	epcontainerregistrydevelopment.azurecr.io/netfield-app-io-link-configurator:1.0.0-build.8668	node cockpit-bootstrapper.js			running
> netfield-app-opc-ua-io-link-adapter	epcontainerregistrydevelopment.azurecr.io/netfield-app-opc-ua-io-link-adapter:1.0.1-build.10	node ./service/src/main.js			running
> netfield-influxdb	influxdb:latest	./entrypoint.sh influxd			running
> netfield-remote-control	netpsps.azurecr.io/remotemanager:1.0.3	node configure.js			running
> netfield-app-platform-connector	netpsps.azurecr.io/netfield_app_platform_connector:2.0.1	./netFIELD_Proxy			running
> netfield-app-mqtt-broker	netpsps.azurecr.io/netfieldappmqttbroker:2.0.14	/docker-entrypoint.sh /usr/sbin/mosquitto -c /mosquitto/config/mosquitto.conf			running
> edgeHub	mcr.microsoft.com/azureiotedge-hub:1.4	/bin/sh -c "echo \"\$(date --utc +%Y-%m-%d %H:%M:%S %Z) Starting Edge Hub\" && exec /app/hubStart.sh"			running

NT0001C032B04D

MAIN MENU



Live View

Payload

Container Info

Dashboard

DEVICE ACCESS

Connected Device

Attachments

INFO

Credits



VVB001

Port: X1

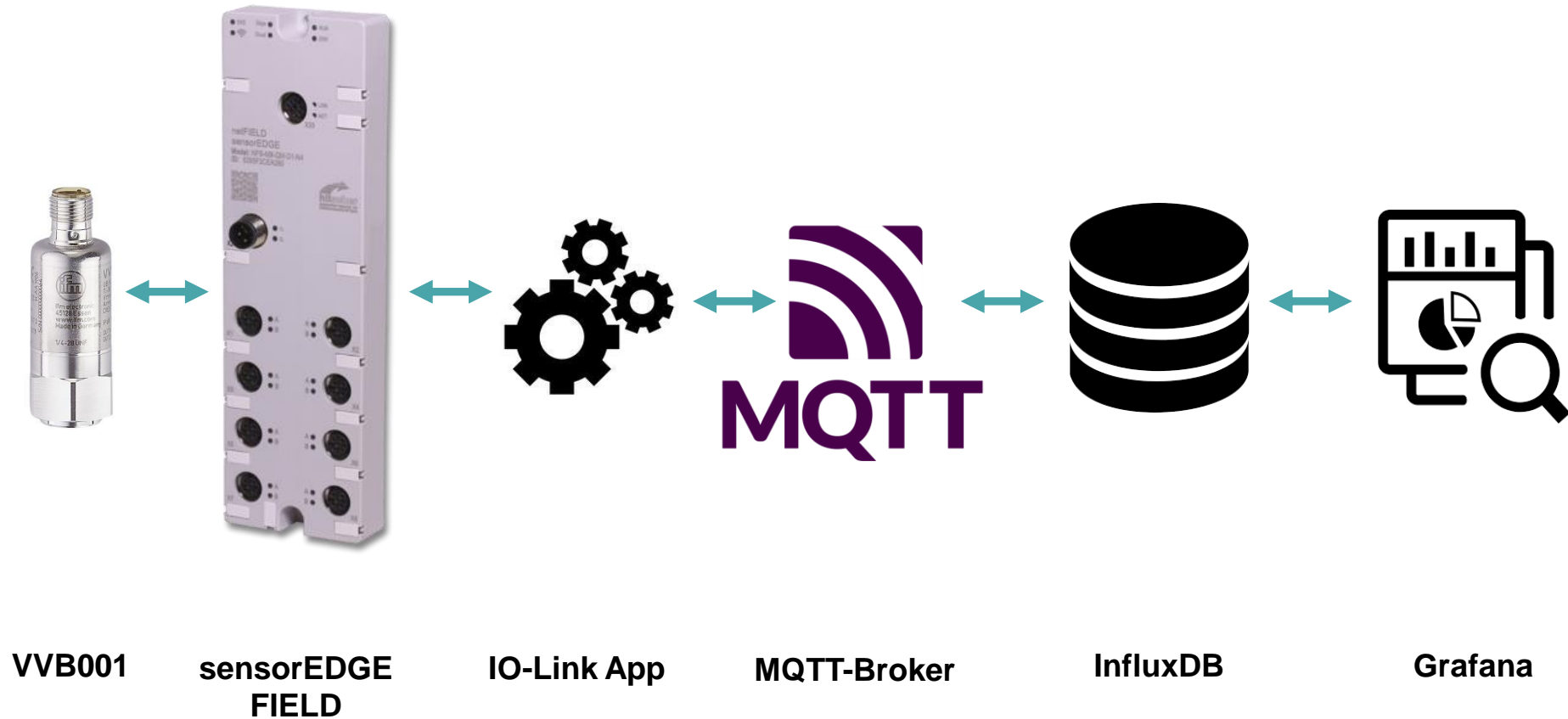
Vendor Name: ifm electronic gmbh



netFIELD App IO-Link Configurator

netFIELD App Platform Connector

# Datenfluß in der IO-Link Welt





# Data Explorer

h



Graph

CUSTOMIZE

Local

SAVE AS



Query 1 (0.05s)

View Raw Data



Past 1h

SCRIPT EDITOR

SUBMIT

FROM

Search buckets

**iolinkData**

\_monitoring

\_tasks

+ Create Bucket

Filter

\_measurement 1

iol

☒ **iolinkData**

Filter

\_field 1

Search \_field tag values

☐ Crest

☐ Devicestatus

☐ OUT1

☐ OUT2

☐ Temperature

☐ a-Peak

☐ a-Rms

☒ **v-Rms**

No tag keys found in the current time range

WINDOW PERIOD

CUSTOM AUTO

auto (10s)

☐ Fill missing values

AGGREGATE FUNCTION

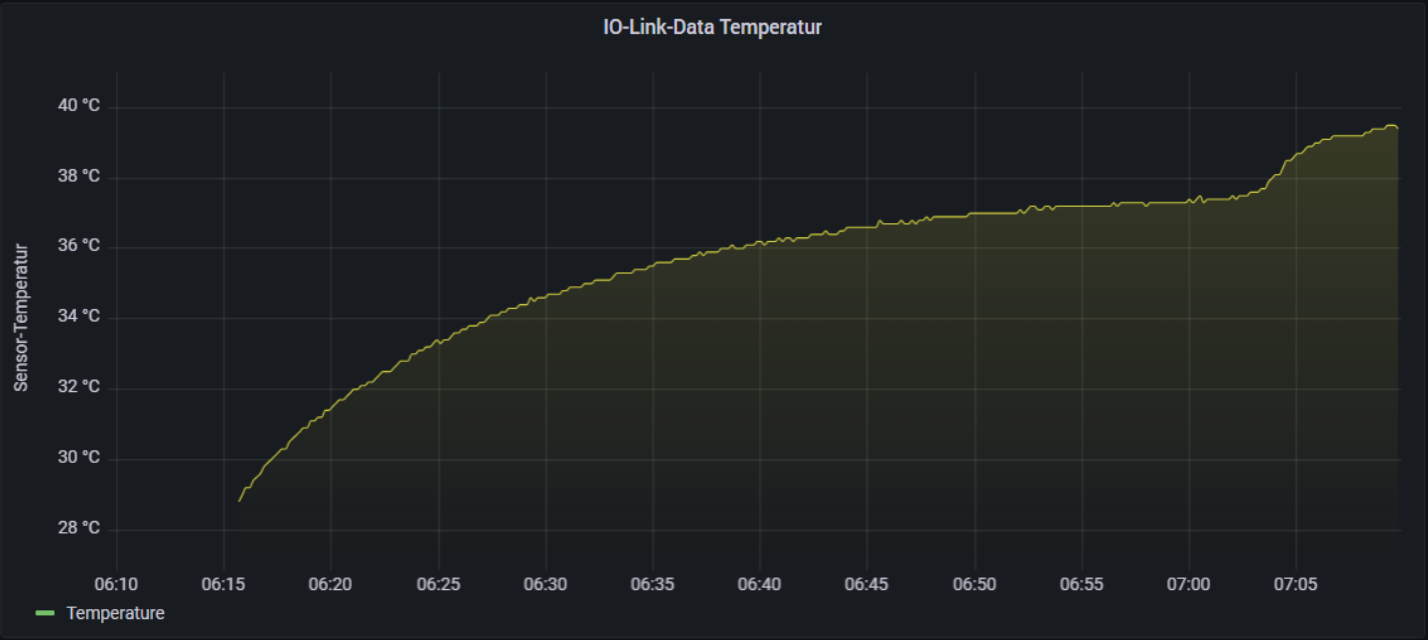
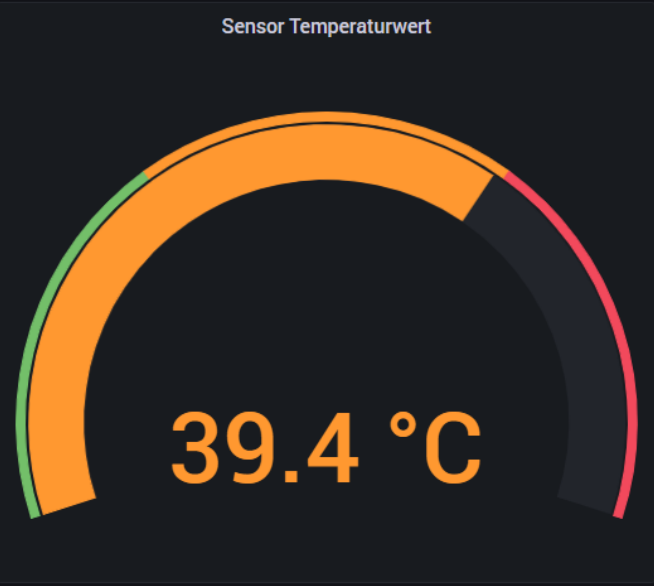
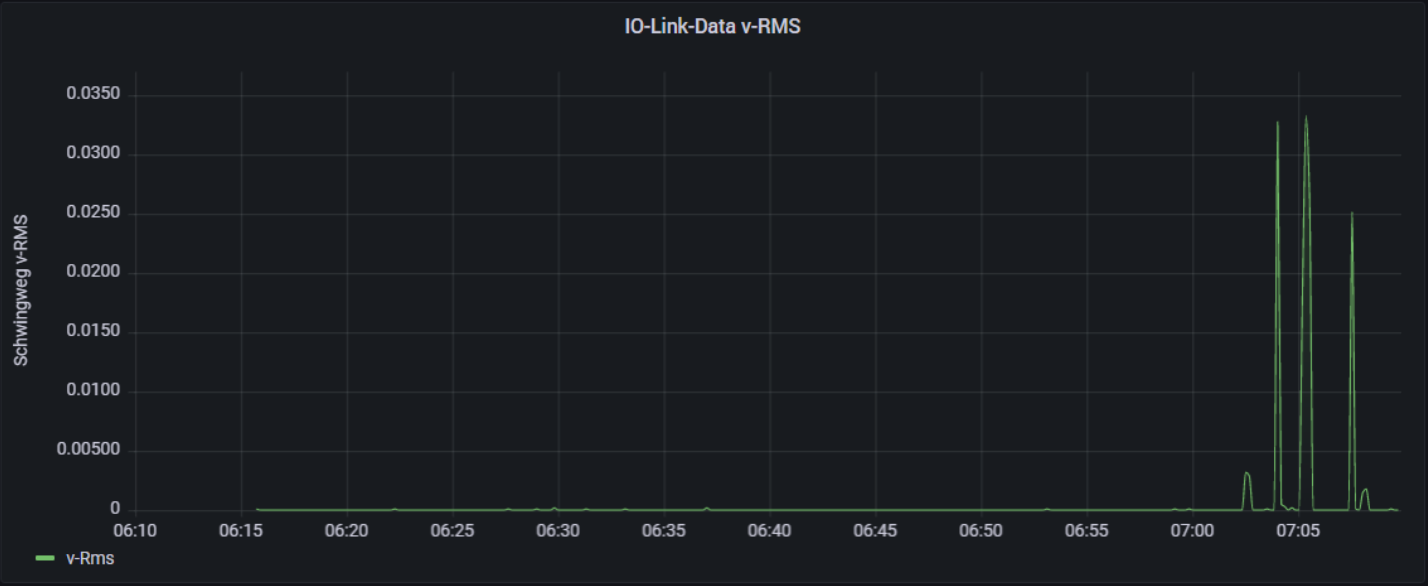
CUSTOM AUTO

**mean**

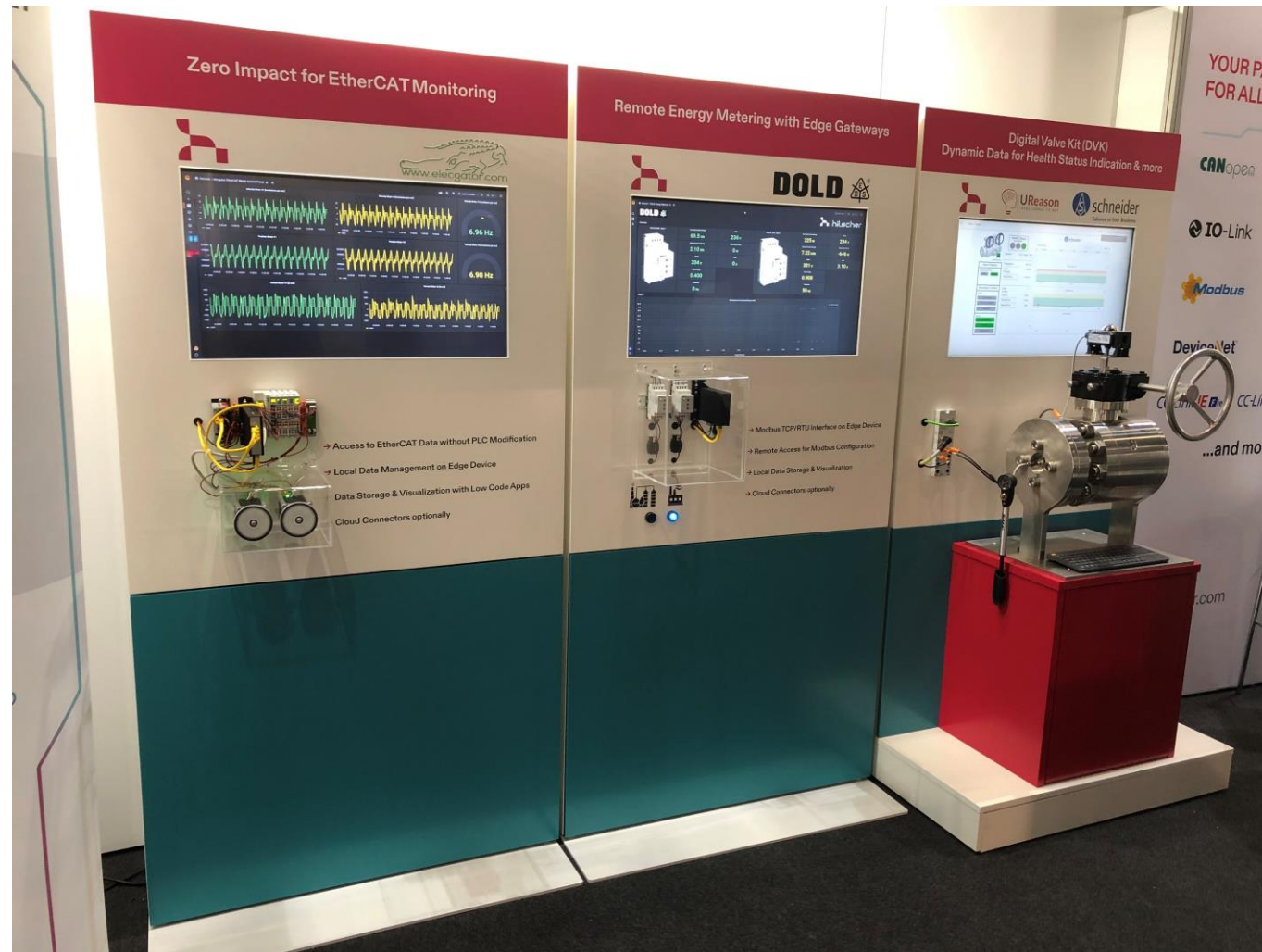
median

last

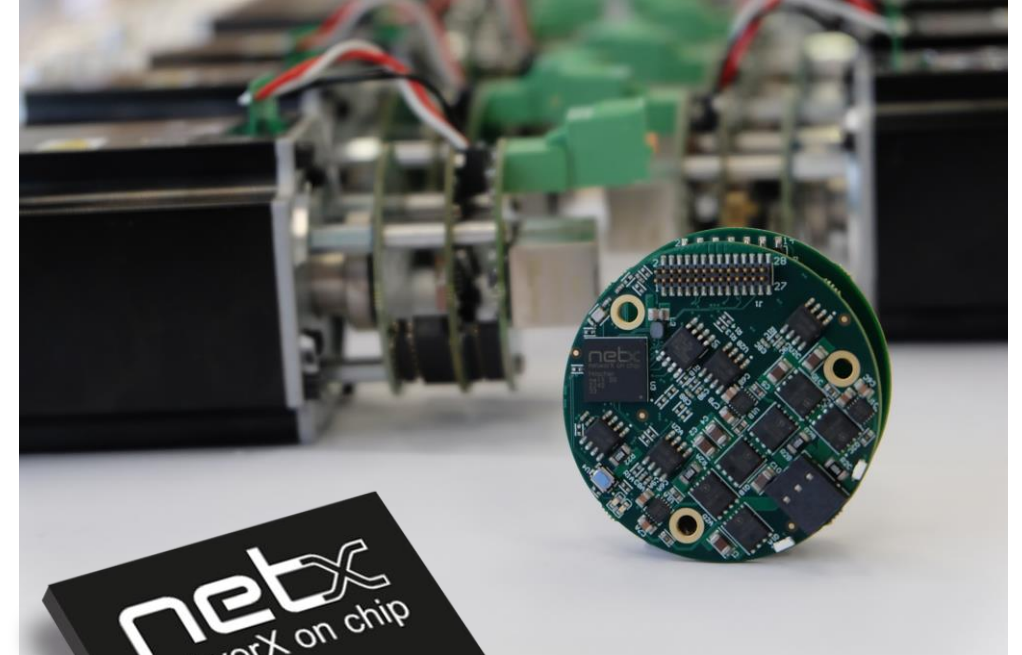
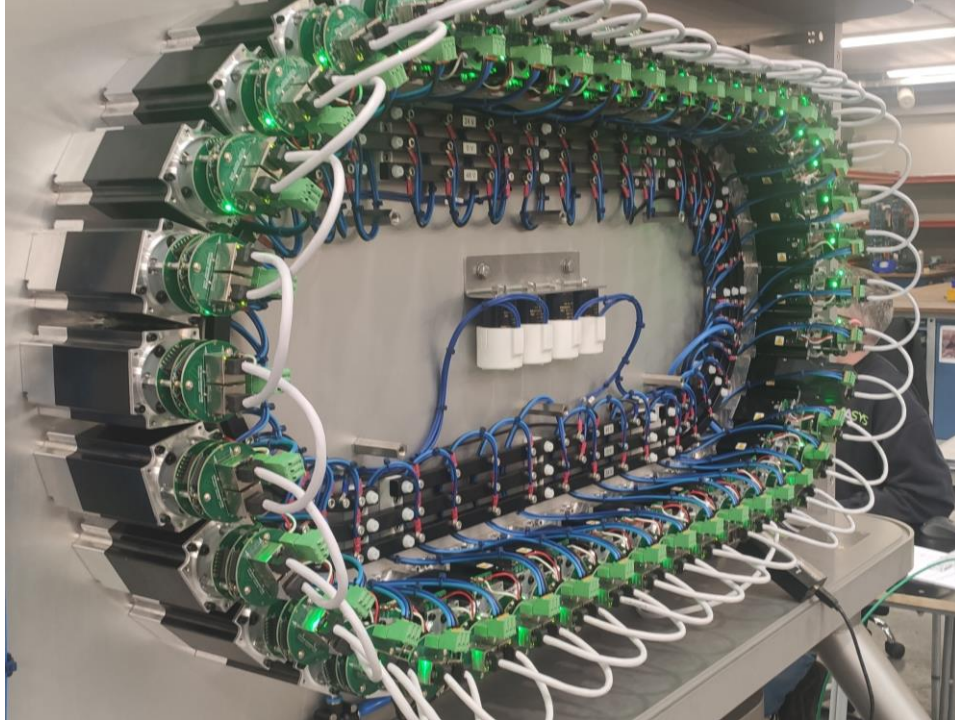




# IIoT Use Cases

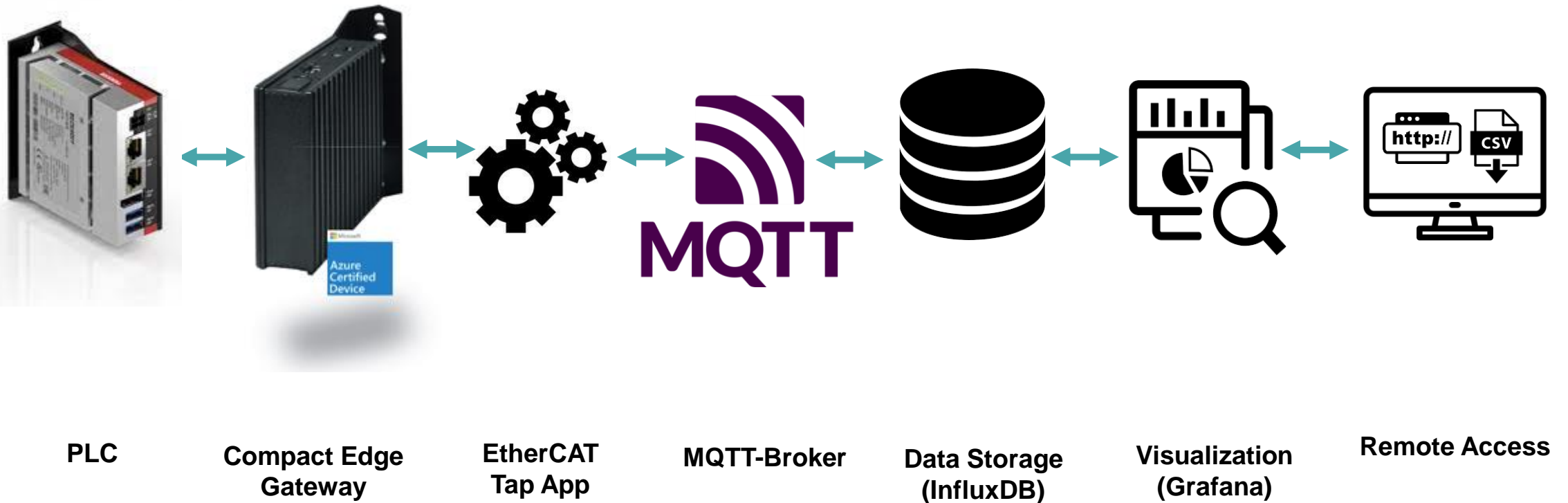


# Steuerung von Schrittmotoren mit EtherCAT



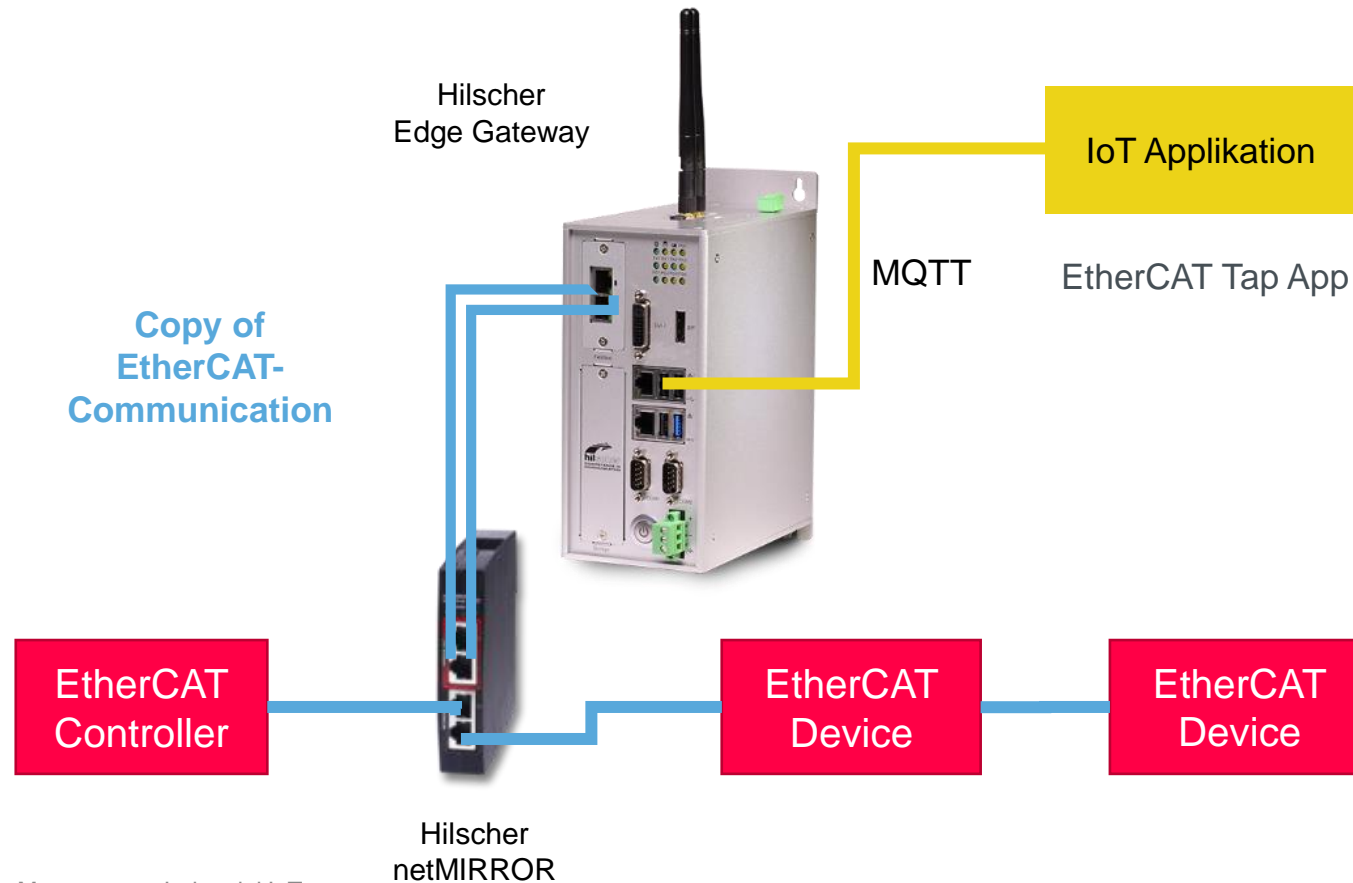
**EtherCAT®** 

# Datenfluß in der EtherCAT Welt

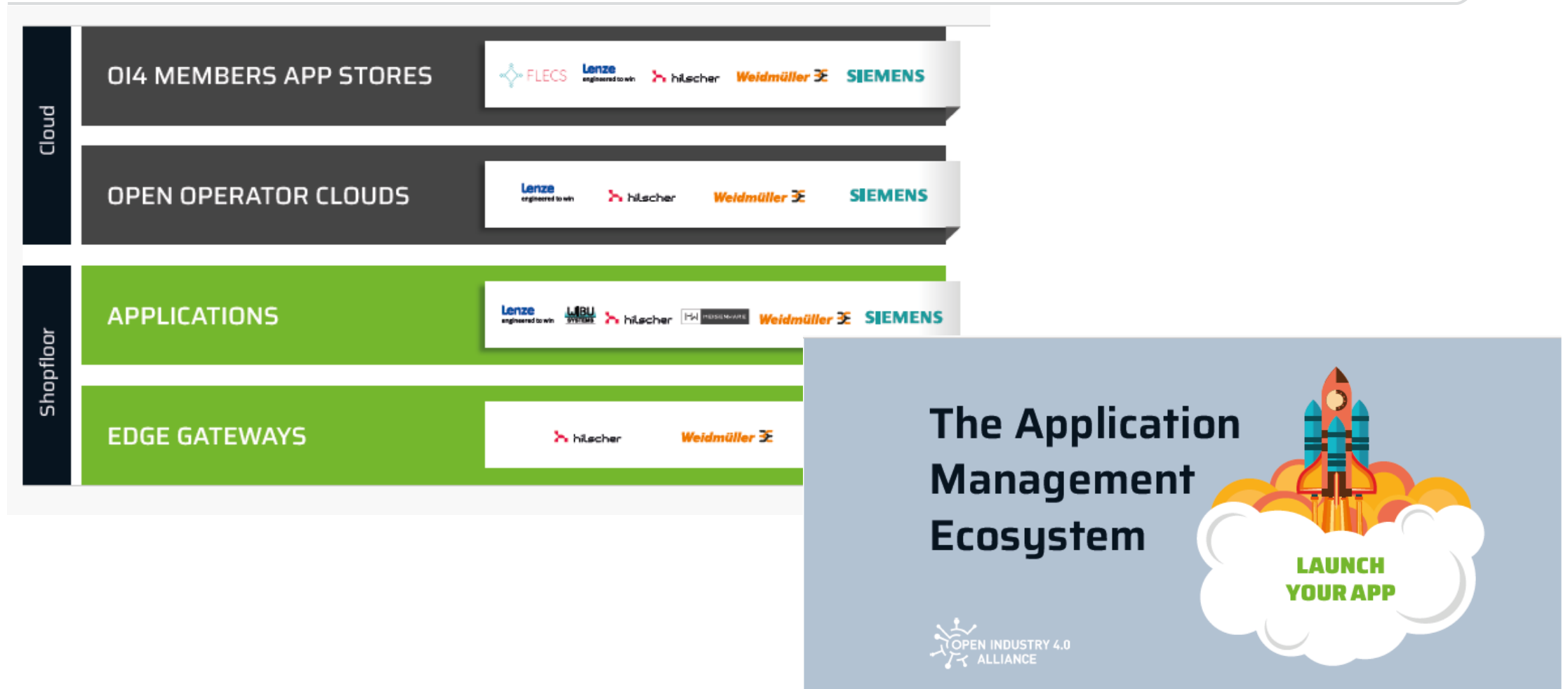




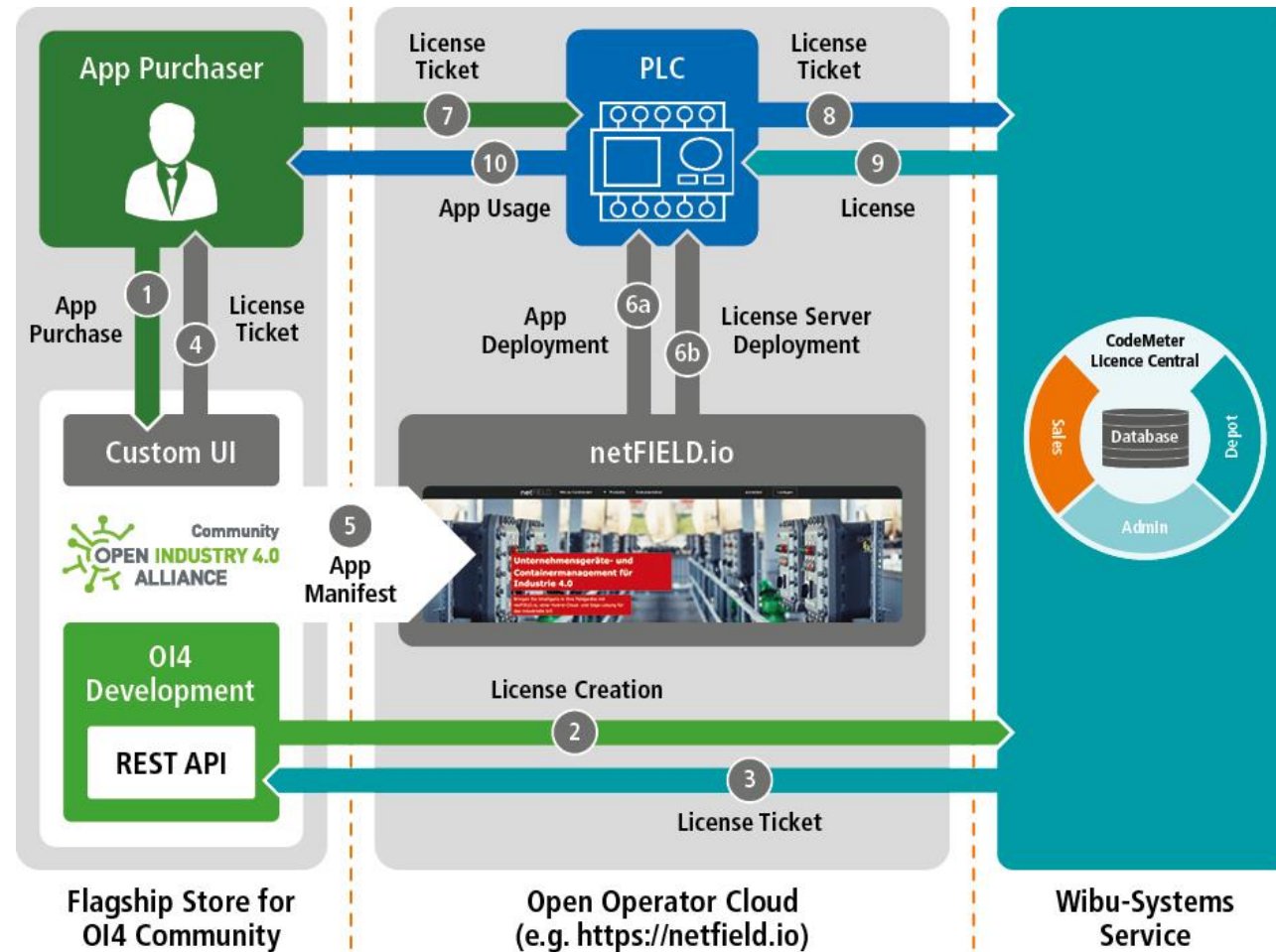
# Datenfluß in der EtherCAT Welt



# Open Industry 4.0 Alliance: Workgroup Application Management



# Das App Store Eco-System





Flagship Store für die OI4 Community



provided by



Analytik

Cloud-Verbindung

Datenbank

IT-Verbindung

Logik

Prozess

Geräte-Adapter

Zubehör

# Alles für die Digitalisierung Ihrer Produktion an einem Ort

Nutzen Sie die neuesten Technologien verschiedener Anbieter, um Ihre Digitalisierungsprojekte im Bereich der Produktion umzusetzen. Die offenen Standards, die diese Anbieter im Rahmen von OI4 gemeinsam entwickeln und bei der Entwicklung ihrer Apps nutzen, sorgen für größtmögliche Flexibilität und Unabhängigkeit.

MEHR INFO



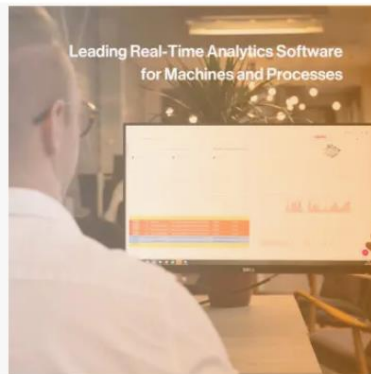
## UNSERE HÄNDLER



### Lenze SE

Lenze ist seit über 75 Jahren Taktgeber in der Automatisierung.

Mehr Informationen →



### UReason

Die führende Echtzeit-Analysesoftware für Maschinen und Prozesse

Mehr Informationen →



### logiccloud AG

logiccloud - Industrial Control für das digitale Zeitalter

Mehr Informationen →



### Hilscher Systemautomation

Der Marktführer für Industrielle Kommunikation

Mehr Informationen →

#### Kategorien

Analytik

Cloud-Verbindung

Datenbank

IT-Verbindung

Logik

#### Informationen

Über den Flagshipstore

Open Industry 4.0 Alliance

Impressum

Datenschutz

Zahlungsarten

#### Service

Warenkorb

Konto

Anbieter werden

Händler-Login

#### Kontakt

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65795 Hattersheim

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📠 +49 6190 9907-50

✉ info@oi4appstore.com



# Vorausschau

- Edge wird immer wichtiger
- Anwender wollen (noch) nicht mit ihren Daten in die Public Cloud
- Cyber-Security ist ein RIESEN-Thema (CRA!)
- Geräte-Verwaltung, auch remote, wird ein Thema
- Die richtige Kombination von Cloud und Edge macht's!



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# Hilscher Gesellschaft für Systemautomation mbH

Intelligent Solutions for Industrial Communication

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