



## Who is INSYS icom?

### Company Presentation



- Foundation of the company in 1992
- Owner-managed by Eduard B. Wagner
- Over 100 employees
- International network
- Head quarter in Regensburg with worldwide representations
- Manufacturing in Germany

**The name says it all!**



**INTELLIGENT SYSTEMS**





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## Realise IoT with INSYS icom. Now.



### icom Data Suite

ERP, SCM, PLM, CAD



MES



SIEMENS S7



### Everything from a single source

from concept to development,  
production, distribution, consulting and  
support from Germany



### icom Connectivity Suite

ERP, SCM, PLM, CAD

SVC ticketing system e.g.

Cloud & Third party system



ERP, SCM, PLM, CAD



Azure



HTTPS

## Mechanical engineering

Measuring and control technology, automation, process automation etc.



## Energy

Smart Grid, EEG systems, energy management, e-mobility etc.



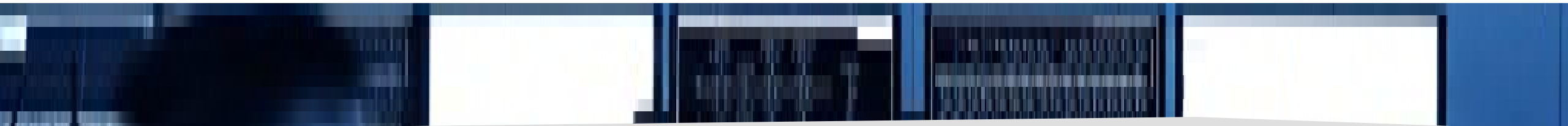
## Infrastructure/ water supply

Supply and disposal of water/waste water, waste disposal, infrastructure etc.



## IT

Cloud application, data transmission, network infrastructure etc.





## Top IoT Verticals

Rayes A., Salam S.  
(2019) IoT Vertical  
Markets and Connected  
Ecosystems. In: Internet  
of Things From Hype to  
Reality. Springer, Cham.  
[https://doi.org/10.1007/978-3-319-99516-8\\_9](https://doi.org/10.1007/978-3-319-99516-8_9)

Agritech  
auto fruit  
ripening



Agricultural & Farming,

Petrol Stations  
and Hydrogen  
Fuel



Energy

Oil & Gas

Enterprise

ATMs Pharmatech



Finance



Healthcare

MIRO



Retail



Shipping,  
tracking and  
E-mobility

Transportations

# Applications – as simple or complex as you make them

**Connection of  
technical  
plants**



**Monitoring of  
*mobile*  
assets & machines**



**Condition  
Monitoring  
for early detection  
of problems**



**Perfectly Controlled Systems  
Make Utilities Happy**







## Use case:

Monitoring of decentralised energy generation plants for renewable energies (solar, wind, biogas etc.).

## Solution:

**Remote maintenance** solution consisting of an INSYS icom router in combination with a VPN service and LTE connection as fallback in case of network failure.



## Customers:

National grid operators and regional energy suppliers



# Smart Utility – Monitoring of gas grid



## Use Case:

Condition monitoring of gas networks and automatic gas pressure value adjustment for leakage prevention at gas supplier SGN in England.

## Solution:

INSYS icom router + connectivity as well as data transmission to central IoT platform (Cumulocity IoT; Software AG)



## Partner:

The British company **Utonomy Ltd.** digitises the operation of gas supply networks with the help of intelligent sensors, controllers and cloud communication. With its expertise, the company is making a significant contribution to the decarbonization and decentralization of the energy distribution.

Source: Utonomy Ltd.

# Remote Access - controlled & protected at production sites



## Use Cases:

Machines in production sites need remote access for service and maintenance from several service suppliers

## Goal:

Harmonizing remote access for all installed machines in the production for Cyber-Security-Reasons.

## Solution:

INSYS icom router in combination with INSYS icom VPN-service and icom Router management.

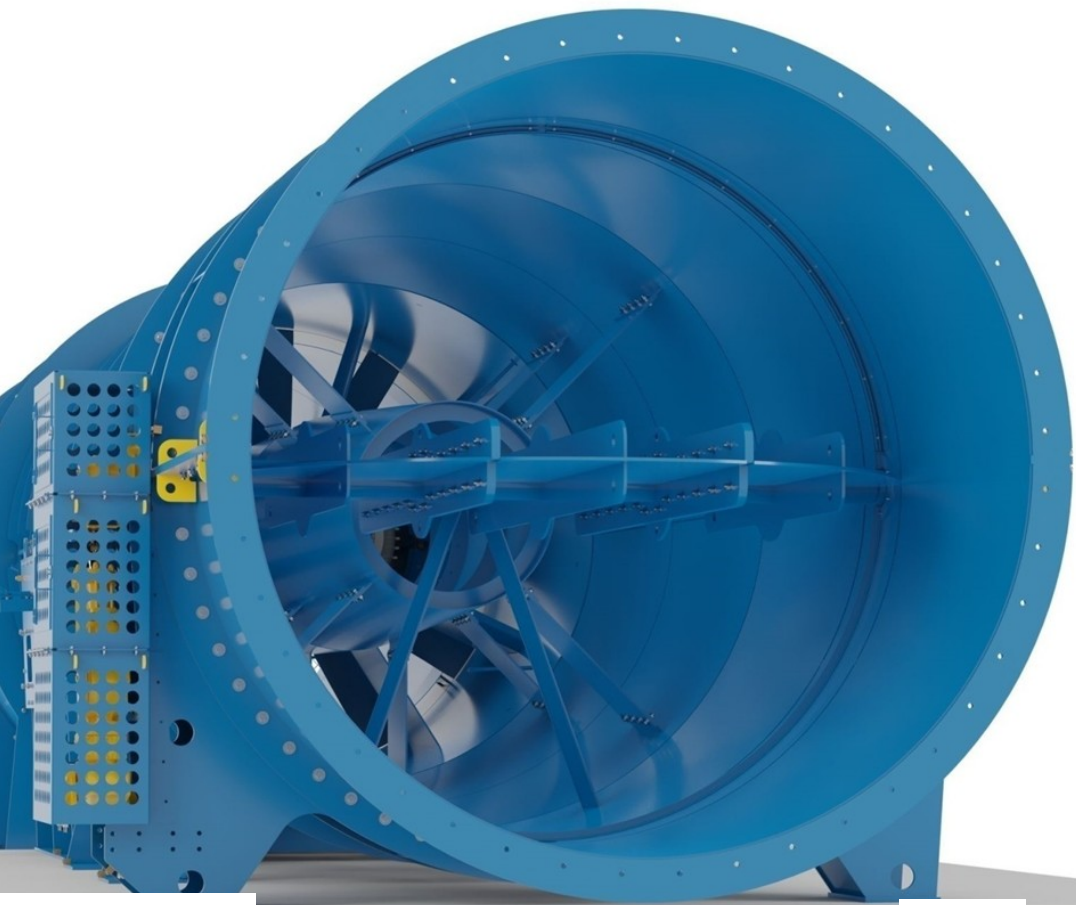
## Customers:

Companies with several production sites located national or international with a high need of cyber-security like e.g. in food-production





- Construction sites, warehouses, production halls, events (tents..).
- Use cases: Provide Internet, Remote Access, Alarming
- Used product: MIRO
- Why INSYS icom: small, compact, price, DIN rail mounting
- Used “Teltonica” > unhappy with stability
- Compete against “MikroTik”



- Ventilation in Mining, Tunnels, Metro / air compression (turbo) in process industry, power plants
- Use cases: Remote Access for “run in”. Condition Monitoring / Remote Access for aftermarket services
- Used product: MRX3 LTE, Antennas, Power Supply, iCS, iRM, SIM, Container
- Why INSYS icom: flexibility (MRX), programming option, stability (also mechanical); one stop shopping







- Larger AC stations, DC stations (fast chargers), networked charging hubs (Bus depots..)
- Use cases: Central Internet Access for station, Remote Access entry point
- 3G shut down > retrofit
- Used product: MIRO
- Why INSYS icom: small, compact, price, DIN rail mounting

# Monitoring MRIs



- Monitor MRIs in hospitals to ensure magnets are properly cooled
- Use cases: Condition Monitoring and Remote Access (VPN)
- Used product: MRO, iCS, Container
- Why INSYS icom: Reliability, long year relationship (MoRoS), added value with container



# Mobile Power Generators



- Disaster response, fire brigades, civil usage (festivals, mains backup system), also rental
- Use cases: Condition + Location Monitoring
- Used product: ECR-LW300, iDS
- Why INSYS icom: All-In-One-solution with cellular + IoT data handling; easy to use + flexibility with Lua Scripting
- Solution replaces WAGO PLCs



- Water treatment, recycling and disinfection of drinking water and process wastewater. For car wash, food- and catering sector.
- Use cases: Remote Access
- Used product: MRO / ECR-LW300 (Wifi)
- Why INSYS icom: Visibility – our routers were seen in many comparable systems.





- Floodgates, Locks, Water Level Measuring
- Use cases: Scada / Remote Access + NEW: Increase Security by managing Devices
- Used product: MRO + NEW: iRM
- Why INSYS icom: Reliability (MoRoS), consulting, functional upgrade possibilities with icom OS and iRM.

# Separating Solids from Liquids



- Treatment of slurry on farms
- Use cases: Remote Access, Alarming
- Used product: MIRO
- Why INSYS icom: small, compact, price, DIN rail mounting
- Compete against “Teltonika”





# Different Applications and Sub-systems in Windenergy

**Ice Detection**

**Lightning Protection**

**Bat / Bird Protection**

**Night Indicator**

**Shaft Switch Off**

**Transformer Station**

**Grid Control**

**Networking & Connectivity**

**Direct Marketing**

**Service & Operation**

- Flexible
- Powerful
- Reliable
- Well known > Visibility

# .... And many more



## Wide range of applications

- POS/digital signage
- Vending machines and service stations
- Chain stores/retailers
- Measuring and signal stations  
(weather stations, traffic signs, speed camera etc.)
- (Mobile) heating and cooling systems
- Mechanical engineering/producing environment
- Waste and recycling stations  
(container, garbage compactors etc.)
- Embedded/Edge PC manufacturer
- Energy market
- E-mobility, charging stations
- Comunal networks (monitoring of filling level etc.)



# IoT it *now* with INSYS icom!

## Market leader

in energy and  
water supply and

## premium manufacturer

in mechanical engineering  
and IT

over 30 years  
expertise

**Everything from a single source:**  
From development to production to customer service  
**Made in Bavaria**

**Consulting competence** together with  
our **system house partners**



**Strong in implementation** with our  
**sales & solution partners**



We meet the  
requirements of

## Critical Infrastructure

with our reliable, secure  
and flexible

## solutions

## Our references



# INSYS icom: Routing, IIOT & managed Services





## Professional Connectivity



Maximum availability



Simple installation and administration



Easy integration into the existing service/IT infrastructure



High security standards



Various possibilities for access



Regardless of manufacturer, type or number of applications



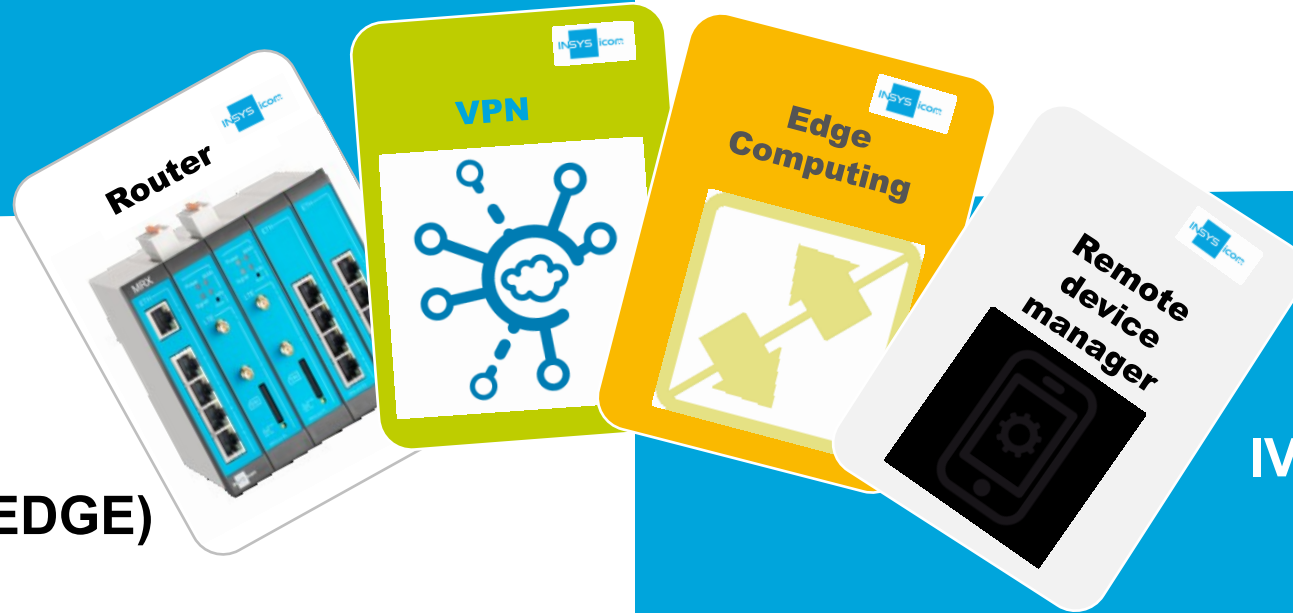
# Our answer: The INSYS icom top trump cards

**I. Industrial router/gateway**

**II. A reliable VPN service**

**III. Scalable  
application software (EDGE)**

**IV. Router management**





**MRX** the flexible power  
6 variants LAN / 4G / DSL + MRcards



MRX3 LTE



MRX5 LTE  
+ MRcards



MRcards

**MRO** the compact 4G power  
1 variant 4G



MRO-L200

**ECR** the all-rounder  
2 variants LAN & 4G



ECR-EW300



ECR-LW300

**SCR** the essential  
2 variants LAN / 4G  
+ 2 variants LAN / 4G with I/Os



SCR-E300



SCR-L300

**MIRO** simply industrial  
1 variant 4G



MIRO-L100



MIROdul

# Overview MIRO



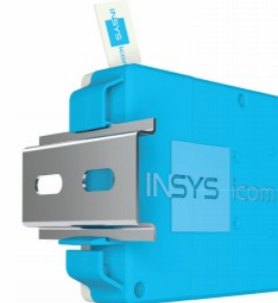
## Key features

### Mobile router

- **MIRO-L100** - EMEA
- **MIRO-L110** - North America
- Also available as module variant:  
**MIROdul-L100 / -L110**
- 1 SIM, 1 antenna (LTE Cat.1, like SCR)
- icom OS
- Connection to ICS-SIM, ICS-VPN & OAM

### Interfaces

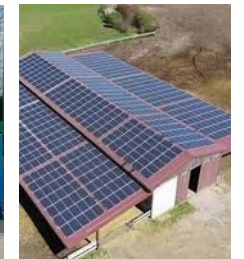
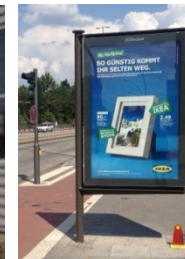
- 1x Ethernet port
- 1x digital I/O (configurable)



## Applications

### Price-sensitive, high volume, routing only

- Vending machines
- Service stations
- Digital Signage
- Waste compactors
- Small solar plants  
(< 100 kW)



### Focus markets

Vending machine construction, environmental, renewable energy, building technology (HVAC)



# Smart Router series: MRX – the flexible power

- State-of-the-art technology and high performance
- High range of functions
- Customer flexibility: Purchase / installation / change / upgrade
- Advantages of icom OS and icom SmartBox



**LAN | LTE | DSL**  
Three basic variants



**3-Slot | 5-Slot**  
Two housing widths



**MRcards**  
LTE | Ethernet | DSL | Serial I/O | LTE Serial | I/O | Fiber

## Flexible into the future with modular hardware!



- **Design freedom**  
Start with the optimal hardware combination for each individual application.
- **Expansion options**  
Additional interfaces needed?  
Simply add more MRcards!
- **Future-proof**  
New technologies available?  
Future MRcards enable fast and cost-effective updates (e.g. 5G).



# icom Smart Router series

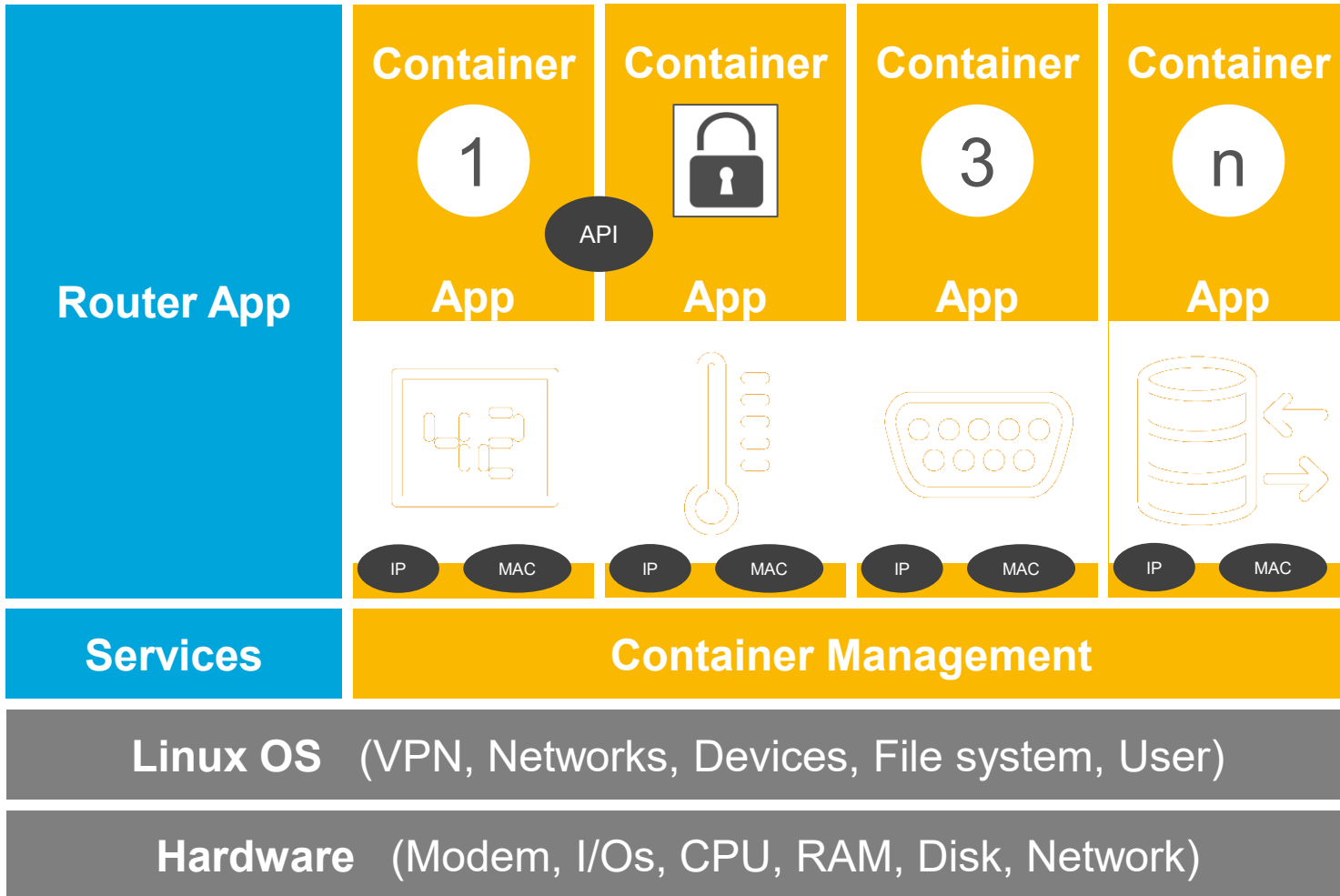
+ antennas  
+ power supply  
+ SIM  
+ VPN  
+ iRM



	MIRO	SCR	ECR	MRO	MRX3	MRX5
4G	X	X	X	X	max. 2x	max. 2x
3G	X		X	X	max. 2x	max. 2x
2G	X	X	X	X	max. 2x	max. 2x
VDSL/ADSL					X	X
WLAN A./Client			X			X*
Ethernet 10/100 Mbit	1	2	2	5	max. 9	max. 17
RS232		1	1	1	max. 1	max. 3
RS485			1		max. 1	max. 3
Digital I/Os	1	optional 2/2	2/2	2/1	max. 6/4	max. 14/12
Analogue I/Os					max. 3/1	max. 9/3
Fibre (SFP)					max. 2	max. 2
USB					max. 1**	max. 3**
Edge-Function		X	X	X	X	X

\* = in preparation

\*\* = Function specific to project



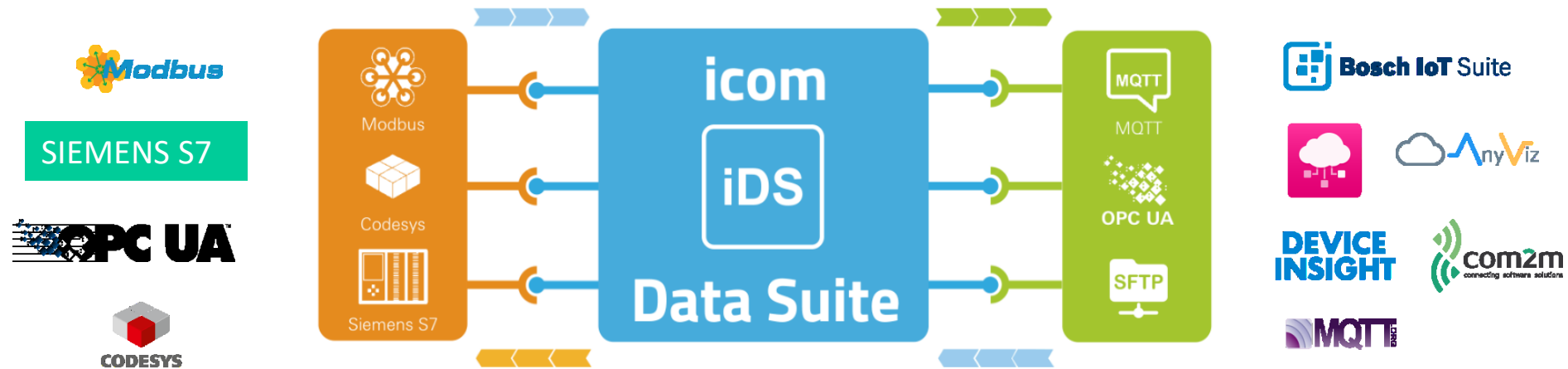
- Modern Linux Container Technology (LXC)
- Parallel operation of several apps on one router
- Completely independent of router firmware / configuration
- Own IP and MAC address per Linux container
- Direct communication between the containers (e.g. via APIs)
- Encryption possible (e.g. know-how protection)



**Remote maintenance**  
(all data always/anywhere for maintenance)

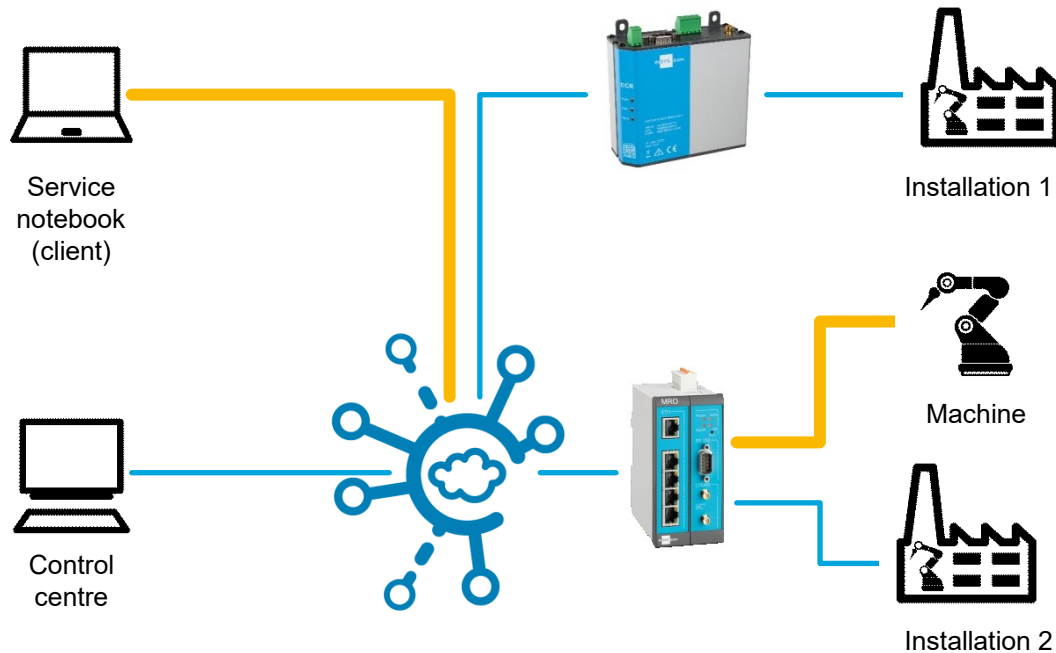


**"Targeted data collection"**  
for monitoring, analysis and reporting



- Alerting and notification
- Converting protocols, Data logging
- Individual or 3<sup>rd</sup> party Applications

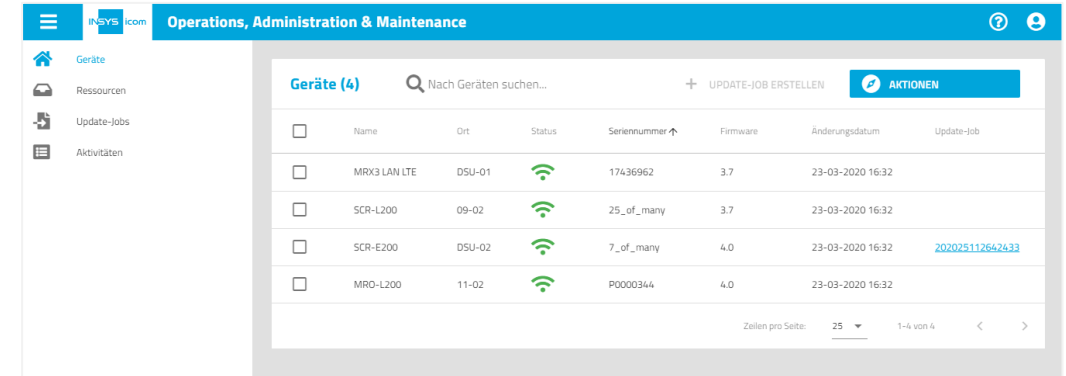
- Data transfer, local evaluation and visualisation
- Connection to a control system or cloud



- **Scalable** and high availability
- **Intuitive**, web-based operation
- **Device, group** and **connection** management
- **Simple operation**, also for OT specialists
- Automatic **configuration** and **certificate** handling
- **Access to devices** behind the router
- Network surveillance (**monitoring**)
- **Logfiles** for seamless reporting
- **ISO 27001**-certified **data centre**
- **Flexible licence model**
- **Always / on demand** online

## Central **device management** for icom Smart Devices:

- Firmware updates
- Changes to the configurations
- Software introduction/updates
- Also supports 3rd party software



	Name	Ort	Status	Seriennummer ↑	Firmware	Änderungsdatum	Update-Job
<input type="checkbox"/>	MRX3 LAN LTE	DSU-01	📶	17436962	3.7	23-03-2020 16:32	
<input type="checkbox"/>	SCR-L200	09-02	📶	25_of_many	3.7	23-03-2020 16:32	
<input type="checkbox"/>	SCR-E200	DSU-02	📶	7_of_many	4.0	23-03-2020 16:32	<a href="#">202025112642433</a>
<input type="checkbox"/>	MRO-L200	11-02	📶	P0000344	4.0	23-03-2020 16:32	

 +  $\begin{matrix} & 0 & 1 & & 0 \\ & 0 & 1 & 1 & 0 \\ & 0 & 1 & 0 & 1 \end{matrix}$  **Template** configurations

 **API** interface

 **"Zero Touch"** rollout

1. Requirement configuration

2. Delivery configuration





## Simple



## Moderate



## Advanced



Monitoring      Datalogging      Protocol Conversion      Cloud (e.g. MQTT)



SIM      Remote Access      M2M network      Access Control      Connection Monitoring      Machine Standardisation



FW Update      Configuration Change      Container Management      Zero Touch

## Choose INSYS

## The possibilities are endless

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## Connexxa Networks Inc.

## is an authorized INSYS icom Service Provider for Canada