

CTHINGS.CO

Intelligent systems for edge computing -
complete, end-to-end solutions to upgrade
your manufacturing, logistic park, public
utilities, or municipalities.



THE PROBLEM - INDUSTRIAL CHALLENGES



COVID-19 creates significant disruption in supply chain.

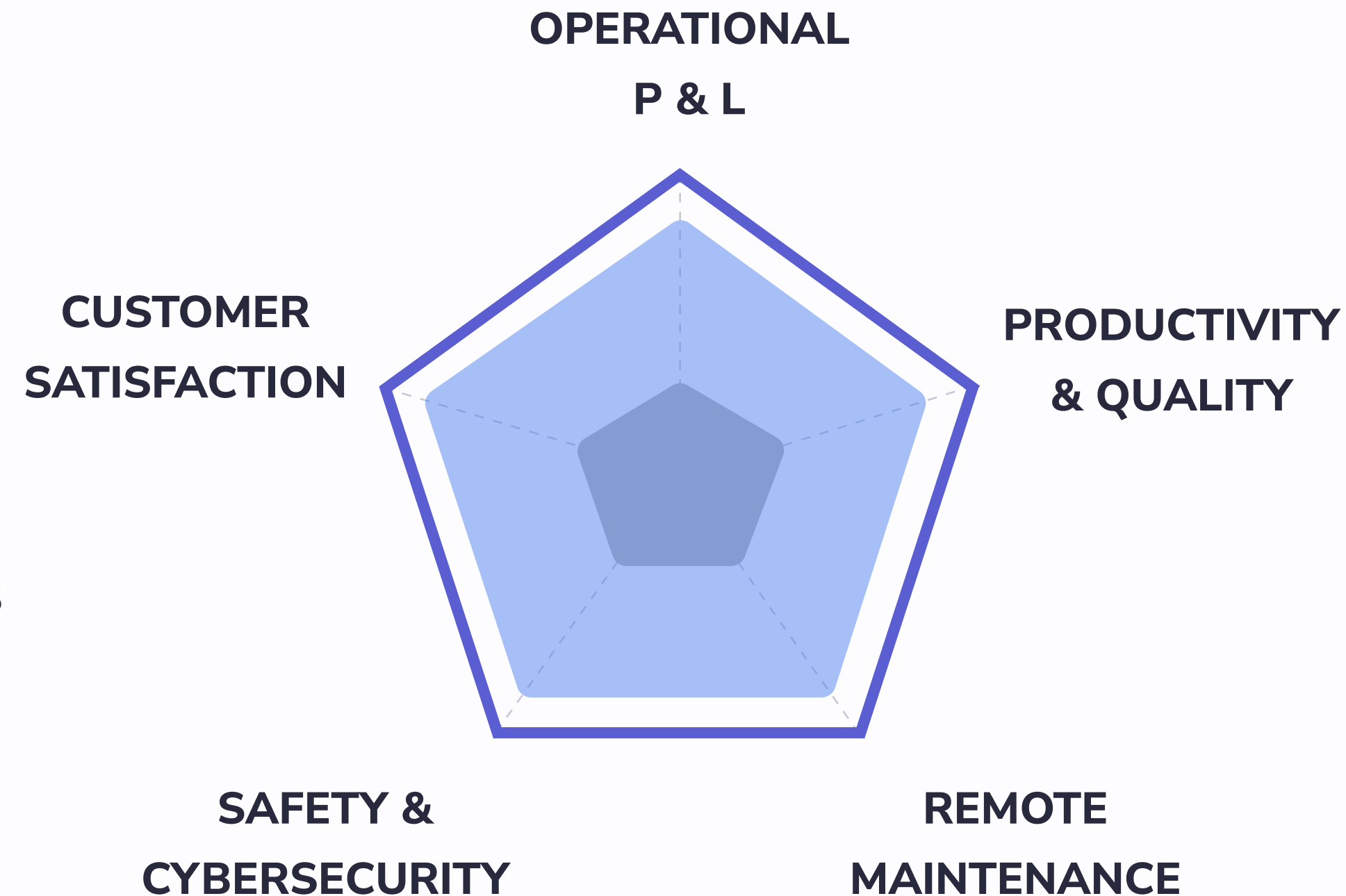
According to the CEA calculations more than 60% of manufacturing businesses have delays nowadays.

Labor shortage blocks GDP growth in EU.

Unemployment rate in euro zone is now just 0.4 % points away from its all-time low, based on the ING economists data.

INDUSTRIES NEED DIGITIZED & AUTOMATED OPERATIONS

- Increase productivity and quality
- Decrease costs and maintenance efforts
- Lower carbon emissions
- Move on to sustainable growth



OUR SOLUTIONS - 5G Suite of Solutions



5G SUITE

All-embracing toolset that enables 5G IIoT use cases

- Industrial 5G IoT Gateway - Hardware
- Edge Computing Operating - Embedded Software
- Cloud Orchestration - Hybrid Networking & Digital Twin



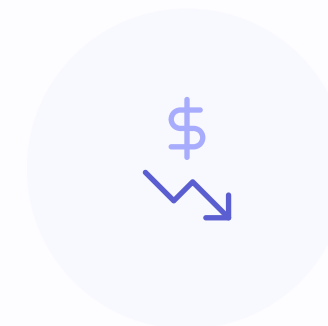
Digitizing existing
physical assets



Real-time and
remote actuation



Analytics and processes
improvement



Decreased
maintenance costs



Increased
productivity



Security
improvement

OUR SOLUTIONS - CLASP



CLASP

Localize physical assets and assure safety of staff, inventory

- Industrial Trackers - Hardware Mesh Network
- Real-Time assets localization - Embedded Software
- Online & Open Platform - Operations Management & more



Automate inventory
management



Save time in
intralogistics operation



Speed up order
processing



Cut labor
cost



Decrease material
losses



Increase safety
and security

OUR SOLUTIONS - RADAR



RADAR

Innovative way of assuring safety in water management

- Water Utilities Monitoring devices - Hardware
- Energy efficient & sustainable - Embedded Software
- Online & Open Platform - Remote Management & more



Upgrade water management



Remotely monitor of liquid level



Real time data from many locations



Prevent flooding by predictive maintenance



Instant alarming about problems



Cut maintenance cost

COMPETITION



5G Networking

[EdgeQ](#) [Pensado](#) [FOAM](#) [Movandi](#) [CellWize](#)

Edge Computing Software

[Samsara](#) [Seeq](#) [FogHorn](#) [BrightM](#) [Claroty](#)

Industrial IoT Solutions

[Aperio](#) [Augury](#) [Nozomi](#) [ReadyRob](#) [ClearBlade](#)



UNIQUE VALUE PROPOSITION



CTHINGS.CO

5G IOT SOLUTIONS

TO CONNECT ALL



- OUR SYSTEM is a **BRIDGE** that **ENABLES** effective use of **5G** in **industrial** domain
- OUR HARDWARE is **SUSTAINABLE** with **LONG LIFECYCLE** and wide range **USABILITY**
- OUR PLATFORM is **OPEN** for integrations, **EXPANDABLE**, and **BEST FIT** for **PURPOSE**

THE MARKET



5G IoT Market

40.2B USD*

CAGR

79.1% y/y

5G Industrial IoT Market

15.7B USD*

Qualified Sales Funnel for now > 2023

26.6M EUR

*Data delivered as for 2026 from :marketsandmarkets.com

BUSINESS MODEL



WHAT?	HOW?	CHANNELS?	WHERE?
5G IoT/EDGE Hardware	One-off or Revenue Sharing	IoT Solutions Providers	Industrial Enterprises
Software License	B2B license	IoT Solutions Integrators	Utility Companies
Platform Subscription	Monthly or Yearly Fee	Telco Operators	Municipalities

WHO WE ARE?



+ 20 EXPERTS
RnD, Sales, Marketing, Growth



Founder & CEO
Arnold

ex Samsung Technology
ex Qucell PdM
ex T-Mobile Solutioning
ex Nokia Sales | BDM



Founder & CSO
Aleks

ex Phoenix Contact Sales
ex Telekom Austria Sales
ex Nokia Solutioning
ex Zumtobel Sales | BDM



COO
Barbara

ex Samba TV People and Operations
ex Mettler Toledo Global PMO
ex Sapiens PMO



Founder & CTO
Shreyas

ex Robotics Ass. Computer Science
WUT

VISION

CREATE UBIQUITOUS TECHNOLOGY THAT RESIDES IN BACKGROUND OF OUR LIVES, ASSISTING ALL ASPECTS OF IT

We're stepping in the lineup with the industry to enforce their capabilities by providing ultra-fast 5G technologies, diminishing losses, and implementing beyond extraordinary hardware/software solutions to those who are willing to reach beyond their day-to-day results.

TRACTION & NEEDS



2020

Investment
& sales plan:

investment : €580k
funnel : €18k
FTEs : 8

Main activities:

RnD
MVPs:

- 5G GW
- Radar

Markets:

Poland
Denmark

Partner & clients:

Tele2, NID ApS

2021

investment : €220k
funnel : €570k
FTEs : 25

RnD, Marketing
Trials & Pilots:

- 5G Suite
- Utilities Radar

Poland, Denmark,
Sweden

Tele2, Orange, T-Mobile
NID ApS, VaSyD, Valmont
and more...

2022

investment : €2M
funnel : €14M
FTEs : 35

RnD, Marketing, Sales
Commercial launch:

- 5GSuite
- Utilities Platform
- IoT Platform

Poland, Denmark,
Sweden, DACH

2023

investment : €5M
funnel : €28M
FTEs : 50

Scale-Up, Expansion
Commercial:

- 5G AI Suite
- Utilities Platform
- IoT Platform

EUR, US

CONTACT

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5G IOT SOLUTIONS

APPENDIX

MARKET

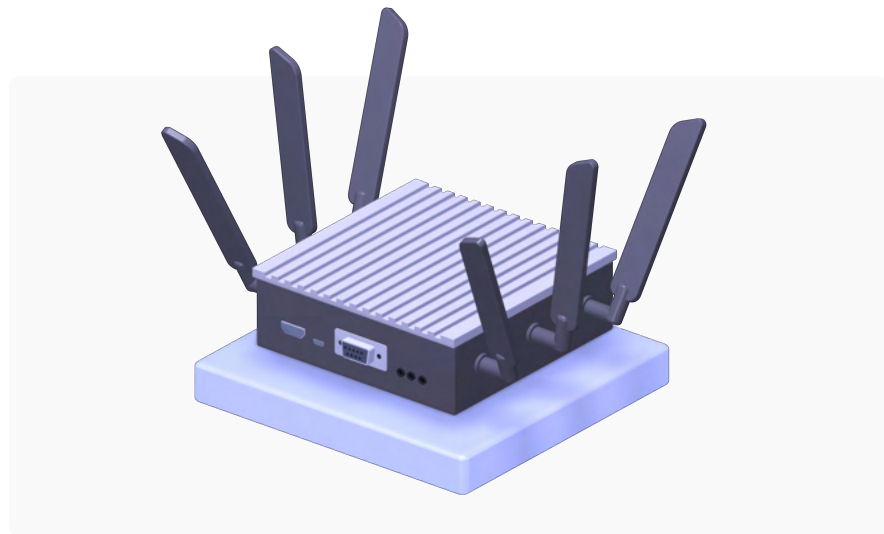
The global 5G Industrial IoT market size is expected to grow from USD 0.5 billion in 2020 to USD 15.7 billion in 2026, at CAGR of 79.1% *

Reasons for this:

- Growing demand for connected devices in industrial environment,
- Increasing need for highly reliable network connectivity,
- Growing awareness for predictive maintenance,
- Government initiatives for smart cities,
- Growth in data traffic owing to increasing number of IoT devices across manufacturing industries.

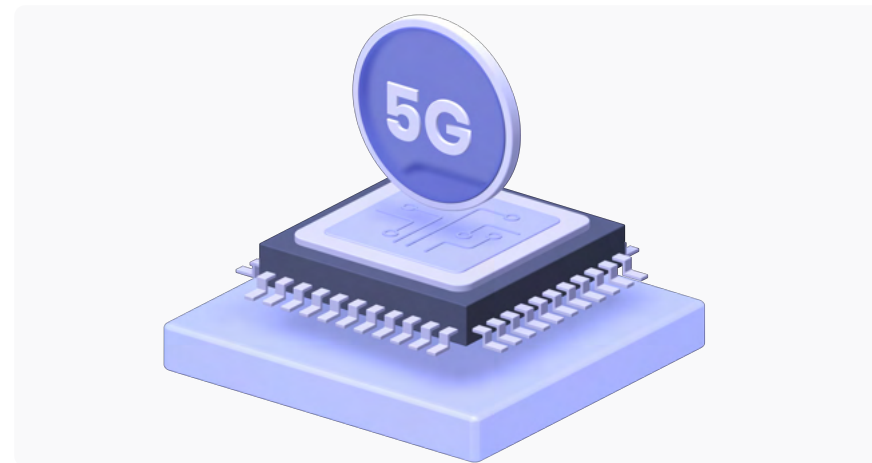
In Europe, the global 5G industrial IoT market is predicted to hold the second-largest share over the forecast period.

ALL-EMBRACING TOOLSET THAT ENABLES 5G IOT USE CASES



- Multipurpose device with 5G and WAN connectivity
- Rich interface portfolio
- High processing power at the edge

DEVICE



- Optimized operating system for fast application onboarding
- Enables integrators and solution providers to utilize the potential of 5G

OPERATING
SYSTEM



- Assures simplified deployment, configuration, and maintenance of edge computing systems
- Provides digital twin capabilities of interconnected IIoT solutions

MANAGING
PLATFORM

HOW IT WORKS - 5G Suite of Solutions



Network 1

General Info

Property	Value
Address space	192.168.0.0/24
Devices	23
Group	Spin Robotics
Nodes with route to Internet	10
Edge-routing nodes	2
Autonomous Systems	1

Devices

Name	Device type	Address	Group	Internet	Connection	Status	
Node 1	type1	192.168.0.1	cthings.co	Yes	Online	Succeeded	
Node 1	type1	192.168.0.1	cthings.co	No	Online	Offline	
Node 1	type1	192.168.0.1	cthings.co	Yes	Online	Succeeded	
Node 1	type1	192.168.0.1	cthings.co	No	Online	Provisioning	
Node 1	type1	192.168.0.1	cthings.co	Yes	Online	Succeeded	
Node 1	type1	192.168.0.1	cthings.co	Yes	Online	Succeeded	

Clusters

Name	Network	Nodes	Group	Kubernetes version	Status	
Cluster 1	Network 1	10	cthings.co	1.20.7	Succeeded	
Cluster 1	Network 1	10	cthings.co	1.20.7	Failed	
Cluster 1	Network 1	10	cthings.co	1.20.7	Offline	
Cluster 1	Network 1	10	cthings.co	1.20.7	Provisioning	
Cluster 1	Network 1	10	cthings.co	1.20.7	Succeeded	
Cluster 1	Network 1	10	cthings.co	1.20.7	Succeeded	

Gateway 1

Device Info

Property	Value
Physical ID	T - 20490057
Type	Industrial 5G IoT Gateway
Group	NID
Location	Olutyn, ul. Kmicko 21
Coordinates	55.683773, 12.523383
Manufacturing date	15.04.2020
Deployment date	12.01.2021
Last seen online	09.02.2021, 12:37

Radio Modules

RADIO MODULE A	
Manufacturer	Quectel
Type/Model	RM520Q
Firmware revision	1234
IMEI	35-49002-389644-3

RADIO MODULE C	

RADIO MODULE D	

Interfaces and Commands

Tab One

Tab Two

Tab Three

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

Current Networks

NETWORK 1

NETWORK 2

NETWORK 3

NETWORK 4

Connection Technology	5G NB-IoT LTE M
Tracking Area Code (TAC)	3104 1363 3123 6441
Cell ID (CI)	35421
T3324 Active Time	2 s
T3402 Periodic TAU	1 h
Signal Strength (RSSI)	-30 dBm
Signal Strength (RSRP)	-140 dBm
Signal Strength (RSRQ)	-60 dBm
Signal Strength (SINR)	-44 dBm

Virtual Networks

Name	IP Address	
Network 1	192.168.0.0/24	
Network 2	192.168.0.0/24	
Network 3	192.168.0.0/24	
Network 4	192.168.0.0/24	

CPU usage

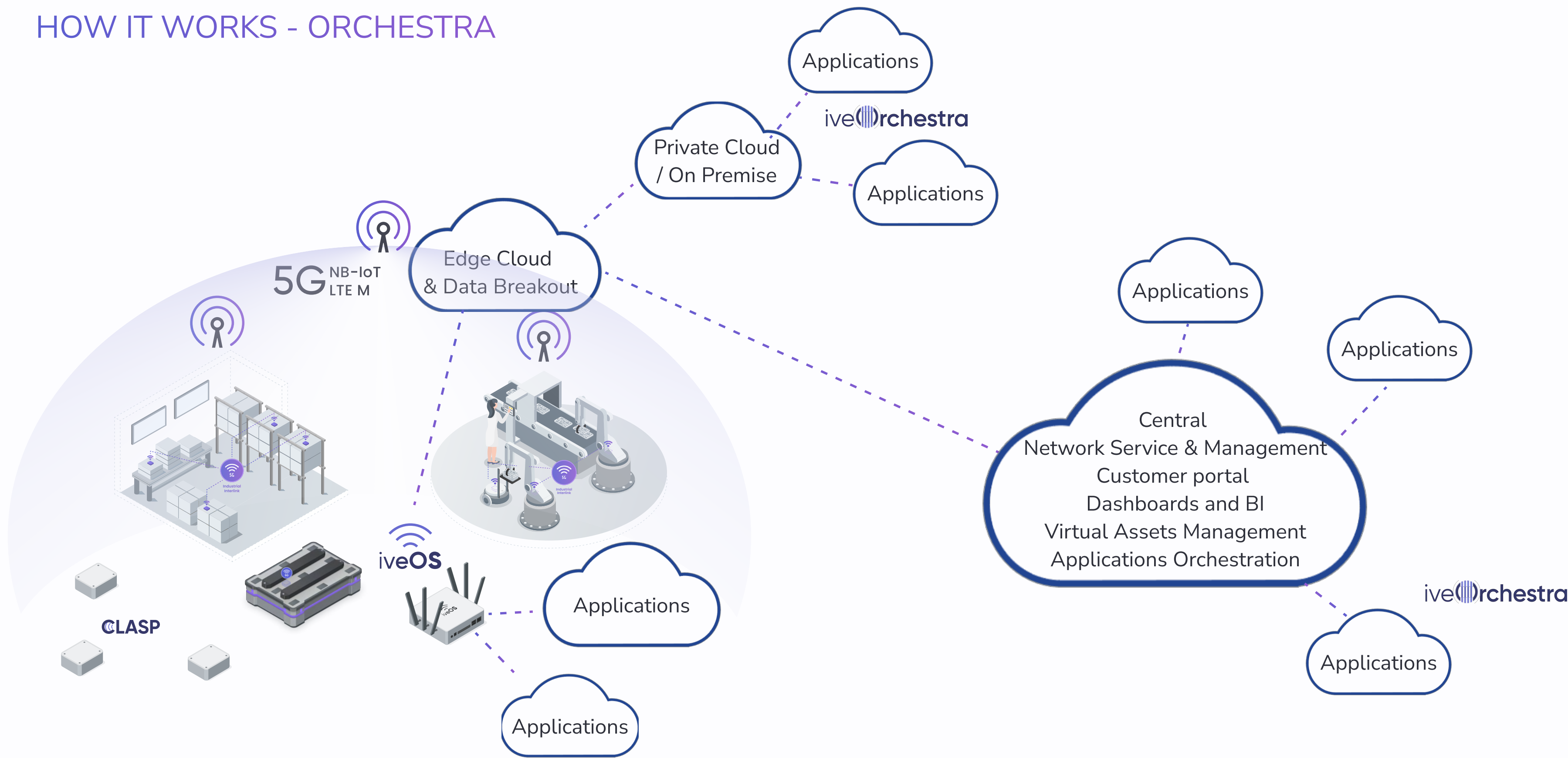
RAM usage

Terminal

Start session

- > <https://mamstartup.pl/cthings-co-opracowal-system-ktory-wykorzystuje-5g-w-przemysle-logistyczne-i-uslugach-komunalnych/>
- > <https://biuroprasowe.orange.pl/informacje-prasowe/testuj-innowacje-w-5g-lab-lodzkiej-sse-pierwszy-w-polsce-kampus-5g-dla-startupow/>
- > <https://www.hubraum.com/what-will-factories-of-the-future-be-like/>
- > <https://sse.lodz.pl/2021/02/15/say-hi-to-the-edge-computing-that-serves-value-to-industry-4-0/>

HOW IT WORKS - ORCHESTRA

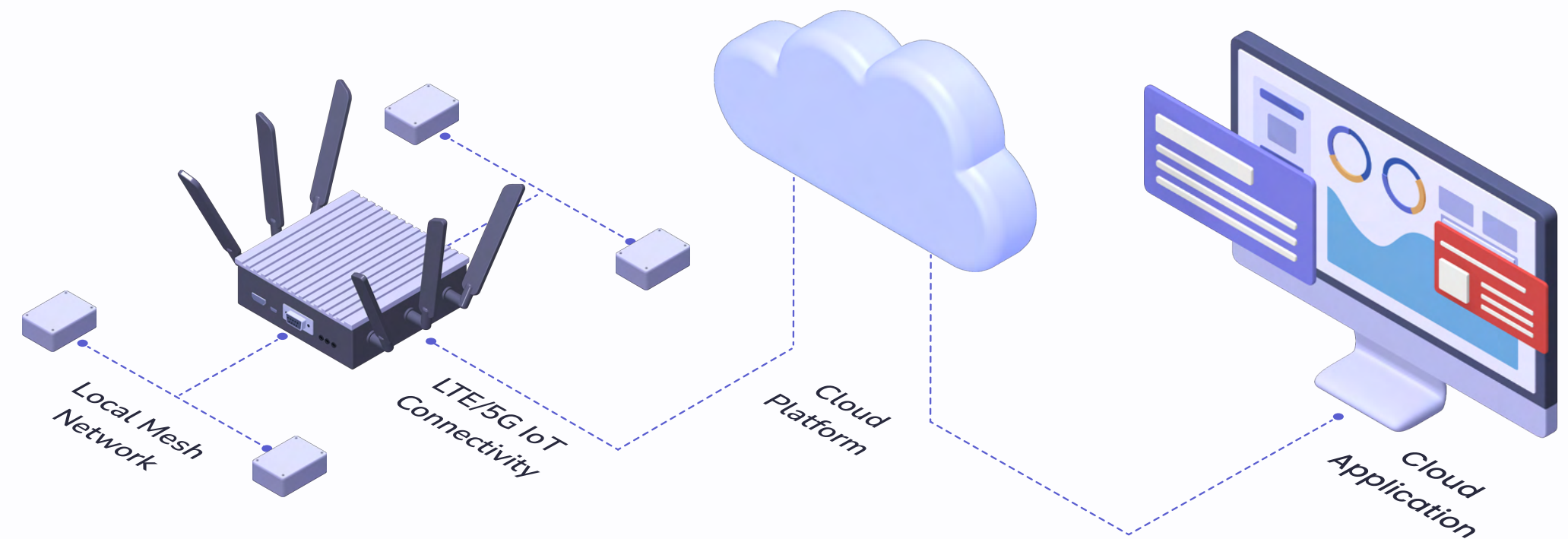


OUR SOLUTIONS - CLASP

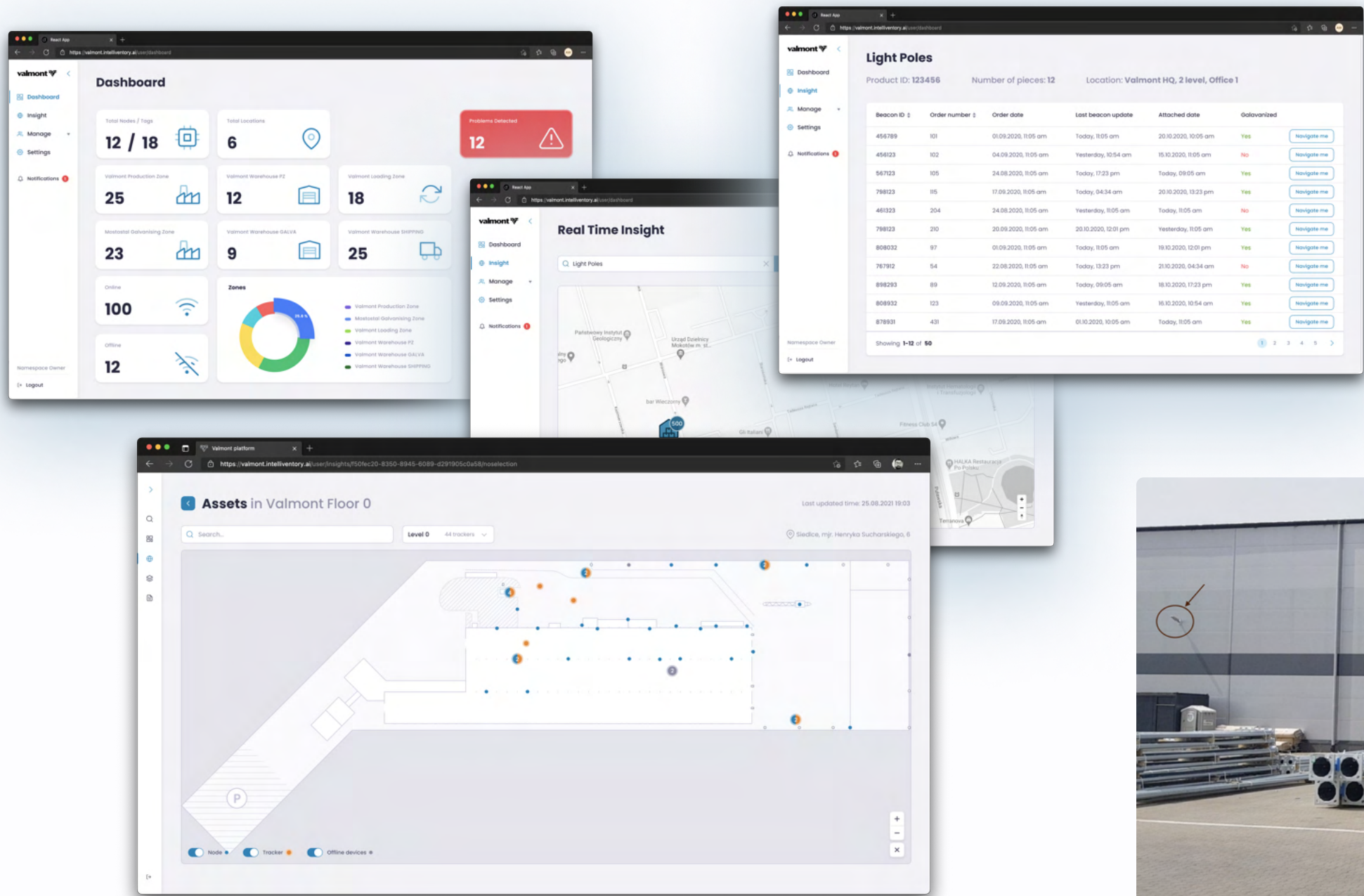
ONLINE INVENTORY MANAGEMENT

Smart nodes and trackers create a local mesh network of self-localizing components. Data is being gathered by edge computing 5G IoT Gateway device and pushed to Cloud Platform.

- 5G as wireless standard
- Cloud infrastructure
- Open Data APIs
- Data brokering
- Wide integration
- Cybersecurity
- Remote maintenance
- Assets management



REFERENCE



<https://businessinsider.com.pl/firmy/biznes-spiety-trytyka-to-nie-powod-do-wstydu-polsko-austriacki-start-up-pokazuje-ze/wrfzec0>

OUR SOLUTIONS - CLASP

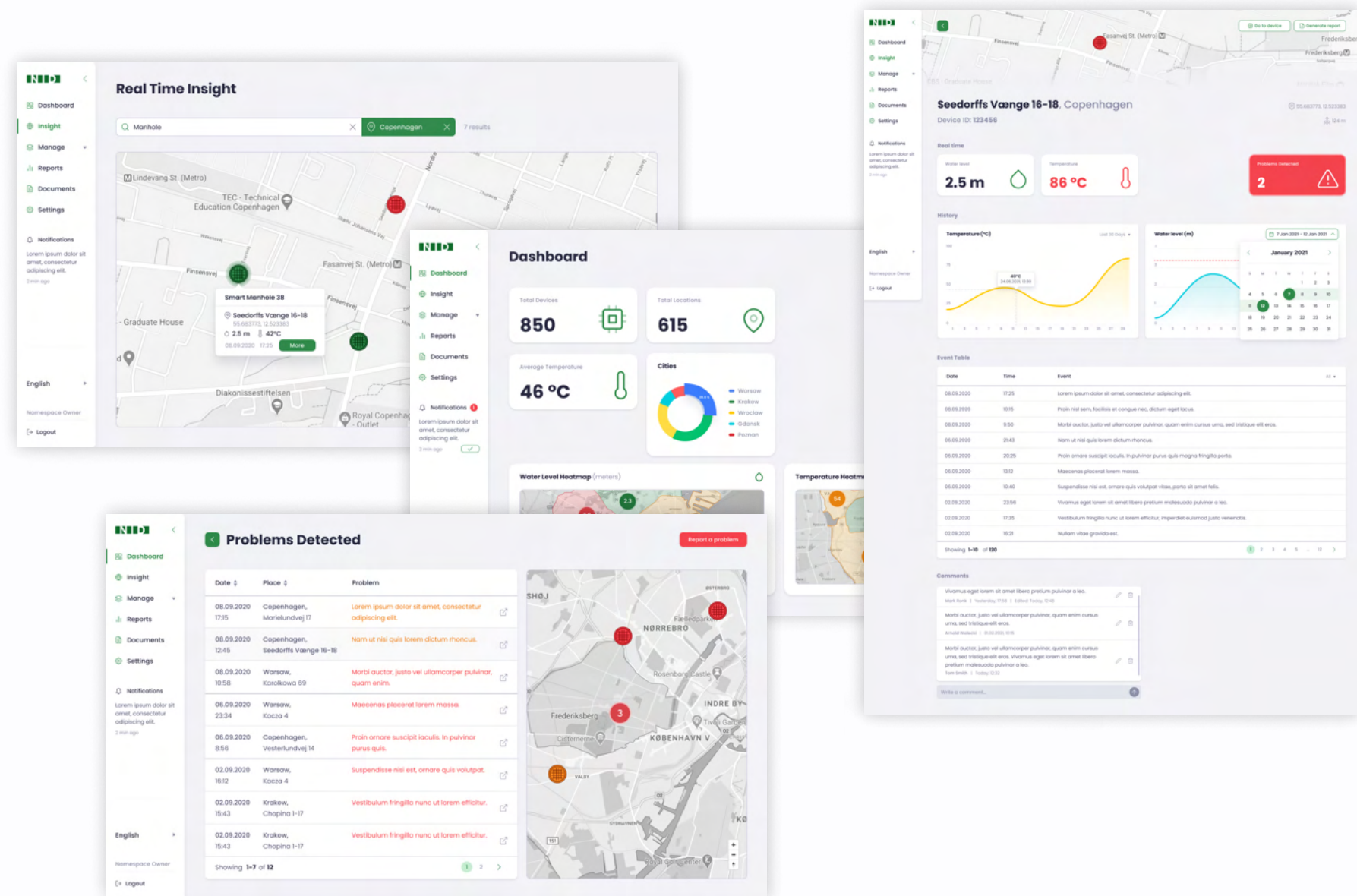
SMART UTILITIES MANAGEMENT

Simple yet highly advanced solution for smart water management. Enables remote monitoring of water levels and real-time data analysis from many distributed locations. Can be used to monitor water, sewage or any other liquid.

- LTE / 5G connectivity
- Smart manhole covers
- Open Data APIs
- Cloud platform & application
- Cybersecurity
- Remote maintenance
- Assets management
- Wide integration



REFERENCE



<https://tele2iot.com/case/connecting-manhole-covers-managing-sewage-systems/>

<https://www.mynewsdesk.com/se/vasyd/news/smarta-brandposter-digitaliserar-va-branschen-421248>

AREA OF INTEGRATIONS

5G CAMPUS

Dedicated enterprise infrastructure to connect and orchestrate all sorts of systems and applications.

Provides extreme wireless connectivity with high bandwidth, low latency and massive capacity for IoT solutions.

Allows to digitize real-time operations with high SLA, performance, and cybersecurity.

Enables new IoT applications:

- Remote machine control
- Assets tracking and indoor navigation
- Wide range of IoT sensors all types of data collection
- Quality Assurance with HQ video analytics at edge

Industrial IoT era brings new challenges to integrate wide range of systems under the umbrella of a simple, yet comprehensive orchestration, monitoring, and control. 5G elevates innovative IoT applications to unmatched performance and reliability.



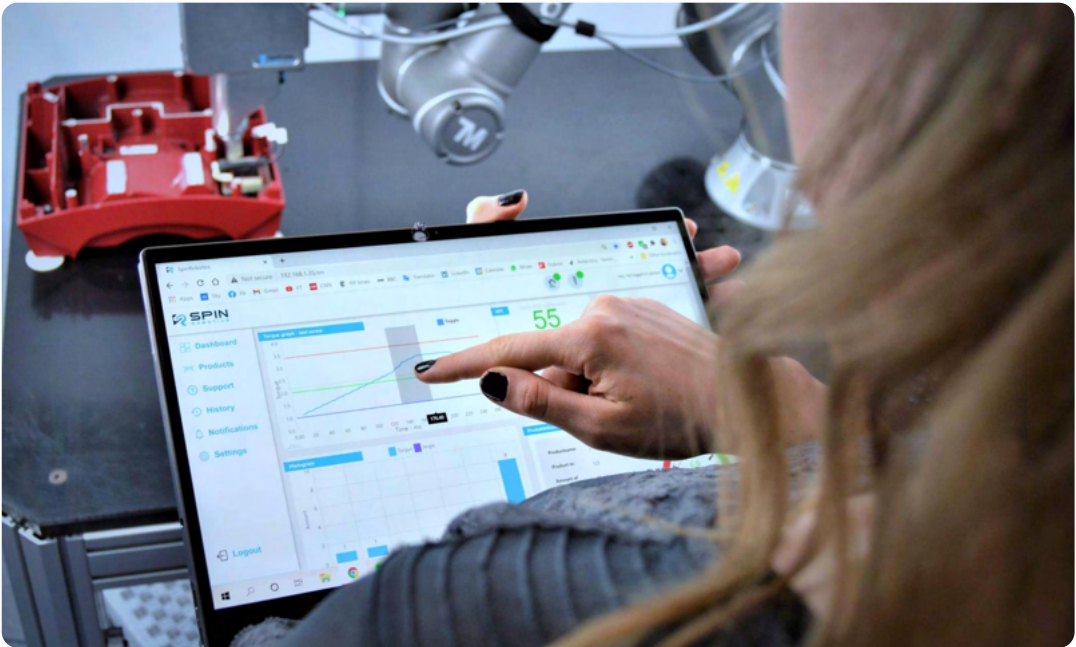
INTEGRATIONS - 5G CONNECTED COBOT

COBOT

Collaborative robot that is used for assembly operations

Save assembly and production time, increase production through automatization.

The cobot is equipped with industrial sensors and 5G AI innovative device with dedicated high performance MPU for edge computing of machine learning algorithms



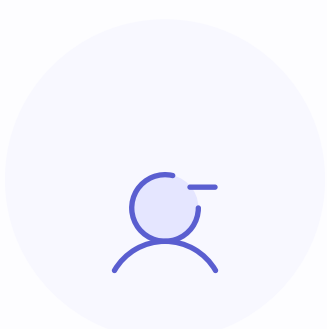
Automation of assembly management



Save operations time in processing



Speed up execution of actions



Cut labor cost



Decrease downtime losses



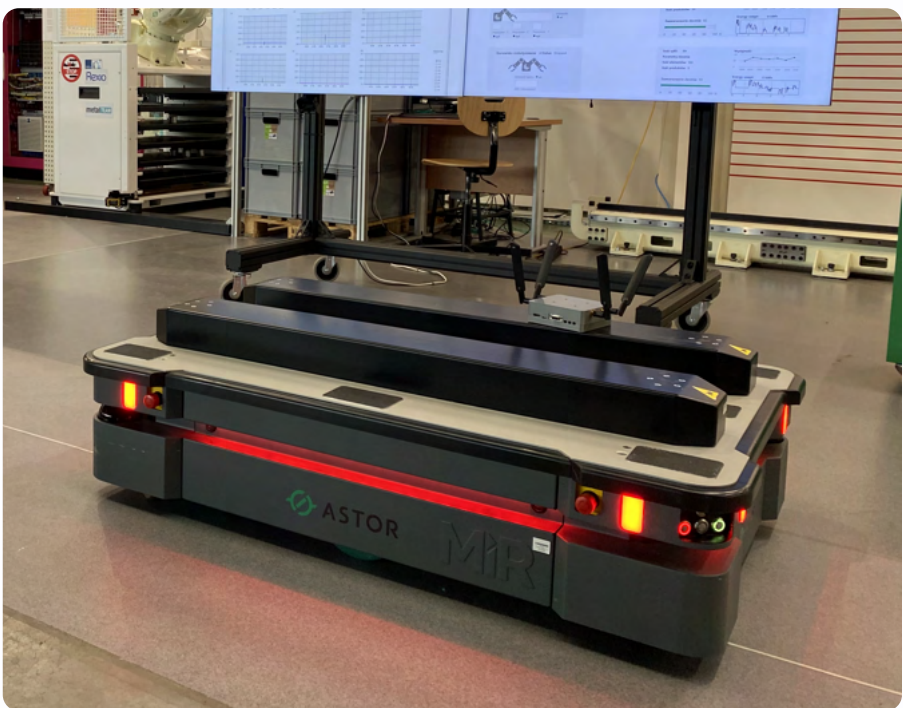
Increase safety and security

INTEGRATIONS - 5G CONNECTED AGV

AGV

Automate and optimize the internal transportation

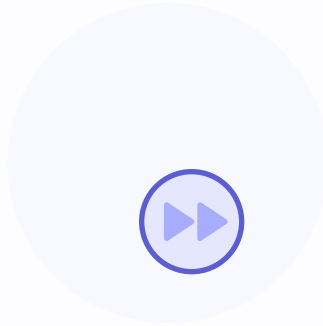
Save operations time in intralogistics.
Collaborative and autonomous AGV safely maneuvers around all kinds of obstacles.
The robot can navigate autonomously and choose the most efficient route to its destination, thanks to real time 5G data transmission



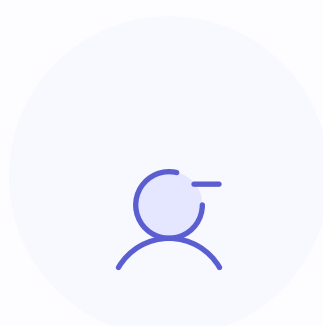
Automation of logistics management



Save operations time in processing



Speed up execution of actions



Cut labor cost



Decrease downtime losses



Increase safety and security

Note

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