

MYNXG® SMART EDGE GATEWAY D3

THE SOLUTION FOR EDGE COMPUTING

The key for the creation of Smart Edge Computing are the integration capabilities of the Gateway. MyOmega is focused to create Smart Edge computing for the Industry 4.0. The d3 Gateway offers multiple communication interfaces, End-2-End Security and an Android® Application framework on proven Intel Atom® CPUs. MyOmega is changing the “Edge Computing” by linking the gateway with the cloud. The cloud based Transformation and Services solutions create the ultimate “d3 Gateway” Smart Edge computing experience.

“MYNXG® d3 Gateway” is driving the digital change at

- the World Market Leader for Industrial Sensors wanted a new way to drive tank digitalization and monitoring of industrial installations;
- innovation leaders within the logistic business offering new service concepts for their customers, the leading automotive OEMs;
- heavy industry, which wants to automate the measurement of multiple square meter plasma edge cutted steel plates, red hot bearings up to the control of welding lines.

The MYNXG® d3 Gateway is making the Edge smart

- Industrial Housing with passive cooling allowing DIN rail and wall mounting solutions.
- Android® Edge Computing powered by Intel Atom® Dual Core CPU's.
- Communication via LTE Modem, wireless Wifi Hotspot / Client and 2 Gigabit Ethernet LAN Interfaces including Profinet®, Modbus and Siemens S7 Protocol Support.
- Wired sensor integration via 2 Voltage (0...10V), 4 Current (4...20mA), RS485 / RS232 . interfaces and thousands of capillary wireless sensors via the ISM band (868 Mhz).



Figure 1 MYNXG Gateway d3 with DIN rail mounting option for any electrical cabinet.

SMART EDGE TANK DIGITALIZATION

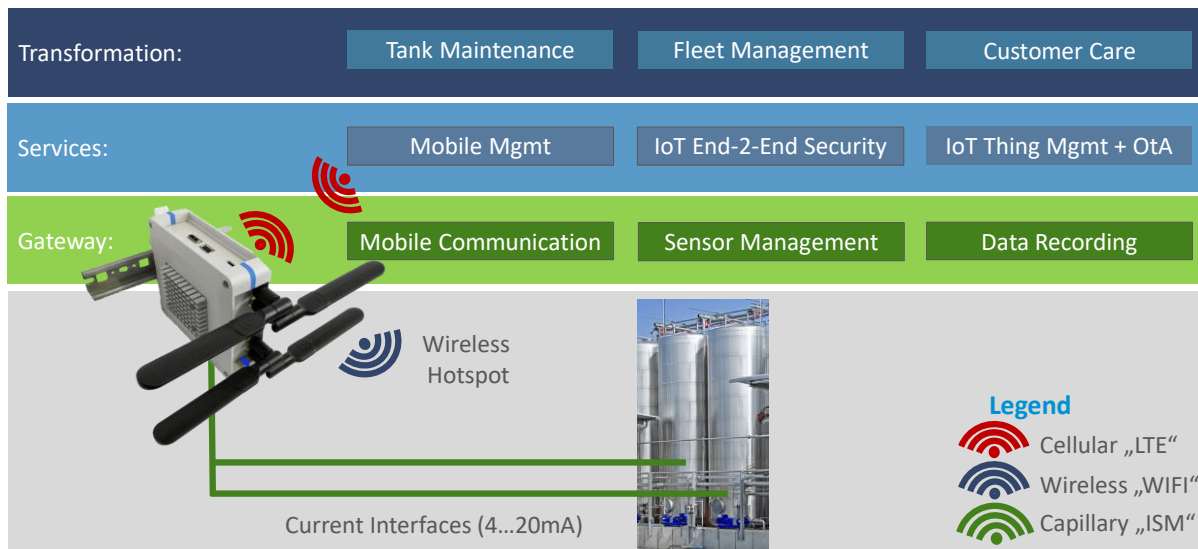


Figure 2: Tank Digitalization implemented at the d3 Gateway, controlling fill level and pressure sensors.

“d3 Gateway” Tank Digitalization

- The d3 has 4 integrated current interfaces (4...20mA) which control the fill level and pressure sensors installed at each tank.
- The sensors are controlled via the sensor management, implemented as Android application inside the d3 gateway.
- Data is recorded, normalized and buffered inside the memory of the gateway.
- A WIFI hot spot is created and information about fill levels is exchanged with the smart phones of the service teams that refill the tanks.
- The built in LTE modem connects the digitalized tanks with the MYXNG Service and Transformation Layer.
- Cloud based applications for tank maintenance, fleet management and customer care provide 7/24 services to any customer, worldwide and End-2-End secure.

SMART EDGE LOGISTICS

“d3 Gateway” Cyber Physical Logistics

- The d3 offers the possibility to create capillary wireless networks per gateway. The wireless networks are creating coverage areas of up to 3000 m (booster mode).
- The US patented IoT and network management technology, is steering the capacity of the cells and resolves timing and frequency conflicts.
- The IoT Thing Management creates a correlated network of multiple gateways. Sensors can move between the gateways, registration, black and white listing is done automatically in the background.
- MyOmega is offering a series of logistics solutions: TracoBin (automated part management); TracoTransport (monitoring of transport) and TracoSense M2M (product monitoring) to be mentioned as examples.

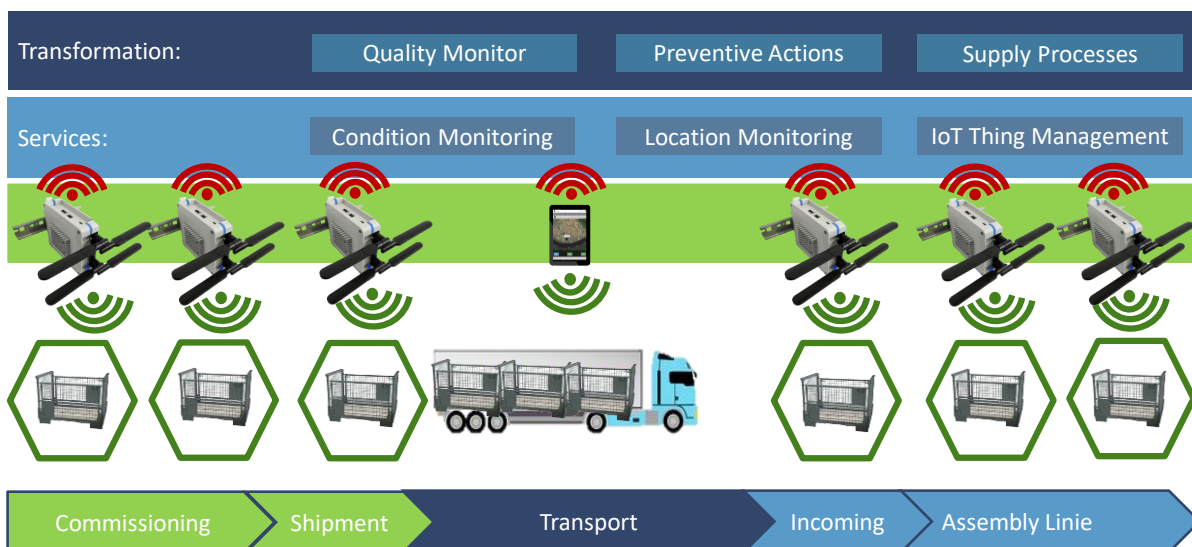


Figure 3 Smart Edge Computing to create a Cyber Physical Logistics based on the capillary functions of the d3 Gateway.

- A leading logistics company within the automotive industry has created together with MyOmega a Cyber Physical System to control the “pearl necklace” of the car manufacturing.
- Each cell or group of cells is configured to cover a specific production step.
- Within the commissioning area the goods, the container and the TracoTransport sensor are paired. The sensors register towards the Cyber Physical System.
- The parts are moved to shipment and automatically register at the truck. During transport a MYXNG tablet acts as gateway. At the incoming inspection of the car manufacturer the goods are auto-registered again.
- The process is completed after the assembly of the goods at the planned car.
- During the entire Supply Process the goods condition is monitored (G-forces, temperature, humidity, air pressure) and values are reported towards the cloud.
- Preventive actions can be taken in case the manufacturing “pearl necklace” is affected.

SMART EDGE WORKPLACE

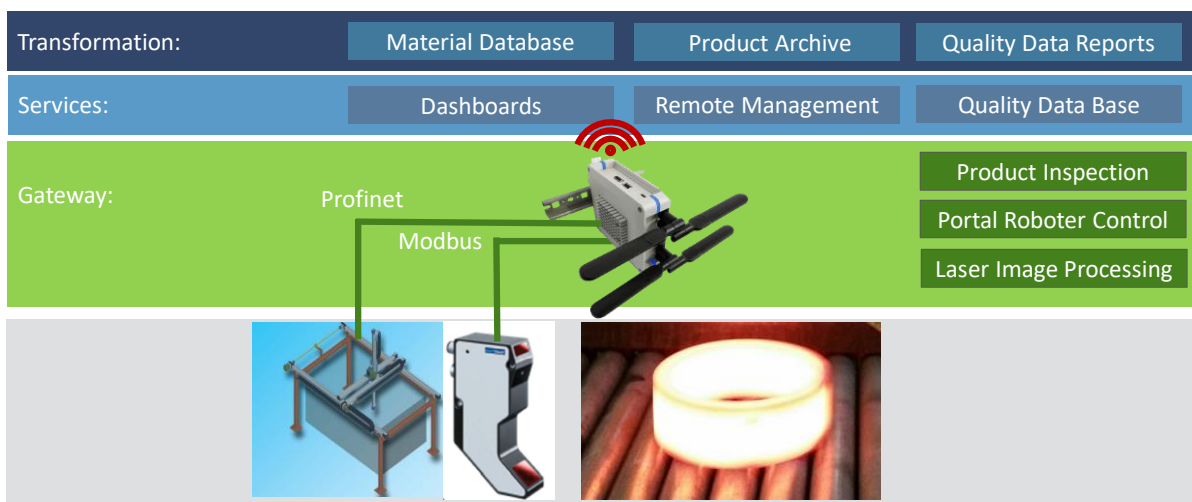


Figure 4 IoT Workplace, d3 controlling the high precision measurement of a laser moved by a portal roboter.

“d3 Gateway” IoT workplace to measure red hot bearings

- The d3 gateway has 2 Gigabit Ethernet interfaces with fully implemented Profinet, Siemens S7 and Modbus Protocol Handling.
- The Modbus is controlling a Quelltech® Laser with specific blue laser light capabilities, to cover the red hot spectrum, the entire MYNXG image processing stack is hosted within the d3 gateway.
- The laser is moved by a portal roboter controlled via Siemens S7 1200 SPS. The communication between the gateway and the S7 SPS is done via Profinet.
- The bearings have dimension of up to 1800 mm in diameter and require a specific movement of the laser. The image processing and recognition is done inside the d3 gateway.
- The system is linked via the LTE modem towards the cloud to enable 7/24 services including remote management of the system. MYNXG transformation applications provide the product archive, material database and create the quality data reports.

“d3 Gateway” user experiences that make a difference

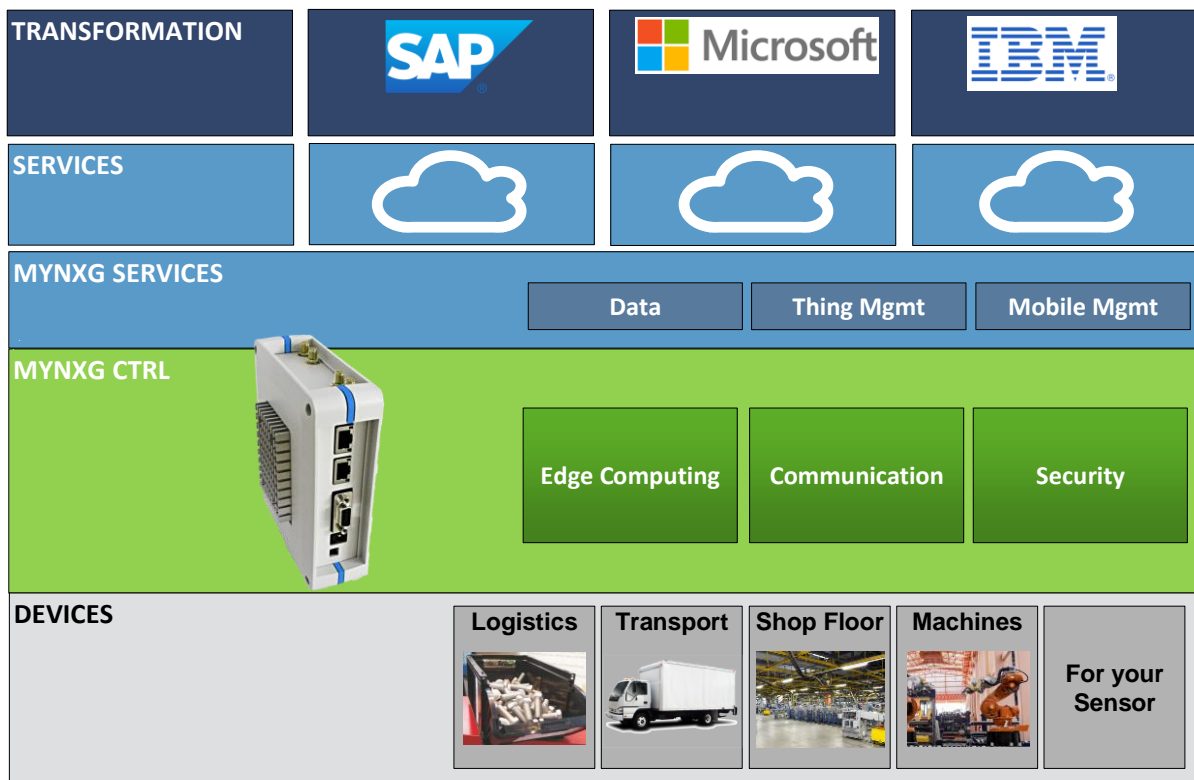


Figure 5 MYNXG Architecture the ultimate Edge Computing Experience

MYNXG introduces SAP HANA Software as a Service and has years of experience with Microsoft Azure® clouds. The MYNXG Thing and Mobile Management offer services like Over-the-Air SW Management for gateways and devices. We manage with TracoBin® thousands of sensors with one gateway. MYNXG® US patented network technology creates Cyber Physical Systems and allows our sensors the freedom to act between gateways.

“d3 Gateway” evolution

“d3” is more than just the sum of its parts. MyOmega has been created by communication experts that decided 4 years ago to develop the ultimate system for the Internet of Things. Together with our partners we offer the benefits of the Mobile Eco System towards the Industry 4.0. The gateway d3 is the newest result combining the best into the ultimate.

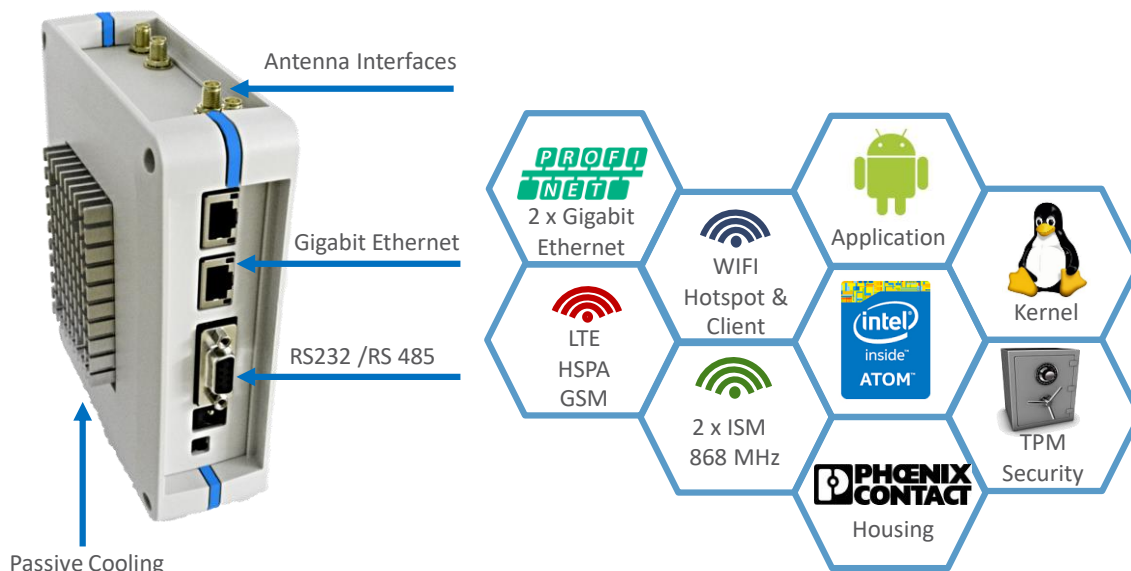


Figure 6 MYNXG d3 Gateway the ultimate Edge Computing Experience

“ d3 Gateway “ user benefits

- “d3 Gateways” are easy to program for any Android® programmer.
- “d3 Gateways” are powered by a MYNXG Linux based operating system that makes it easy to control a unique communication experience.
 - LTE, HSPA and GSM cellular communication.
 - WIFI hotspot and client solution to allow tablets and mobiles to connect.
 - Connect and manage “thousands “ of capillary ISM 868 MHz sensors.
- “d3 Gateways” allow the easy integration of your wired infrastructures.
 - Profinet and Modbus devices are connected via 2 x Gigabit Ethernet.
 - Wired sensors can be integrated via 2 x Voltage and 4 x Current interfaces.
 - Additional digital sensors can be served via the MYNXG I²C bus.
- “d3 Gateways” are secure and support remote maintenance by an End-2-End Security based on a Trusted Platform Module (TPM).
- “d3 Gateways” are powered by Intel Atom 3815 / 3825 CPUs.
- “d3 Gateways” have 2 Gbyte RAM and 4 Gbyte Storage.
- “d3 Gateways” are 145 x 125 x 56 mm small designed into a Phoenix Contact housing.

“MYNXG and the d3 Gateway support your digitalization

- “d3 Gateways” offer further customization through tailor made d3 connector boards.
- We are the agile development partner for your Industry 4.0 solution.
- Please contact MyOmega to create Edge Computing Experiences for your portfolio.