Disrupting the
Industrial IoT market

The Exploding Digital Industrial Transformation:
Industrial IoT provides the enabling information backbone

Smart Factories

Smart Supply Chains

Connected Products

IIoT Backbone sharing industrial data with business applications

Production assets and plant data -> improve decisions precision and speed for high productivity, quality, safety

Production assets data across **the extended supply chains**: just-in-time delivery and right-quality, linking in real-time Tier-n providers to the OEM

Products data shared **between owners and makers**: create digital services, create stronger customer loyalty, create new business models

Alleantia
ALL <THINGS> JOINED

Creating the IIoT backbone is complex and expensive
IoT Integration cost is 40% to 80% of any Industry 4.0 project

Industrial Devices

- **Complex Brown field scenario: thousands of vendors, protocols & technologies to integrate – dozens in the same factory**
- Standards (OPC-UA, MTConnect) adoption on few devices, not consistent
- Long equipment replacement time
- Deep retrofit brings long ROI, slow down projects -> projects failures

Digital Twins

Data Exchange on the IIoT Backbone

Business Applications

- **On Cloud & On Premise**
- **Legacy and New**
- Ent. Resources Planning
- Mfg. Execution Systems
- Equipment Monitoring
- Conditional & Predictive Maintenance
- Quality Management
- Integrated Logistic

Logos (left): Allen-Bradley, Schneider Electric, MITSUBISHI ELECTRIC MELSEC, Rockwell Automation, HEIDENHAIN, FESTO, OMRON, MTConnect, MQTT.ORG, FANUC, Alleantia ALL <THINGS> JOINED, OPC UA, HAAS, rexroth A Bosch Company, SIEMENS, ABB

Logos (right): IBM, OPC UA, MQTT.ORG, Microsoft Azure, SAP, amazon web services, Microsoft SQL Server, DASSAULT SYSTEMES

The Alleantia IoT Software Gateway
The Open Digital Twin Enabler: Faster, Cheaper, No Legacy

*Edge Software connecting plug & play nearly 90% of industrial devices, **ready to use drivers** for **5000+ industrial equipment**, **Edge Intelligence, many APIs and connectors,** reducing IT/OT time and cost for integration by 70% and more.*

001001 101010 110101

Open Digital Twins

IIoT Backbone

connected by **Alleantia**

Open Digital Twins

IIoT Backbone

<var1> <var2> <var3>

xPango® drivers

Library of 5.000+ ready to use drivers
10+ free driver creation tools
30+ industrial protocols
50+ PLC/CNC Vendors

ISC Edge Software

Augmenting Digital Twins

Unified Semantic, Data Correlation, Rule engine. Data Intelligence Creation + Third Party Services integration

IIoT Apps

Connecting any platform

10+ out-of-the-box interfaces to on premise & on cloud platforms 30+ integrated ISVs

Alleantia
ALL <THINGS> JOINED

Versatile IIoT Edge software running on many platforms
Virtualized, Industrial, hybrid, adapting to customers and Partners

ADVANTECH

EPC-R3220 (ARM)

UTX 3117 (ATOM)

MIC-1810 (Core i3)

MIC-7900 (XEON)

CISCO

IR 1120 (ARM)

CGR 1120 (4core AMD)

IC3000 (4core ATOM)

ISR4000 (XEON)

Stratus

zkEdge 110 (Intel Core I7 - Fault-Tolerant Architecture)

DELL

Dell 5000 (ATOM)

PowerEdge (XEON)

Alleantia
ALL <THINGS> JOINED

Industry 4.0 needs collaboration
Alleantia has the largest 4.0 Partners network

ISV & SaaS adopting Alleantia IIoT for delivering end-to-end Industrial Digital Transformation solutions

System Integrators delivering complete IIoT projects with Alleantia

Global Partners

Internationally recognized IIoT Leadership
Alleantia is among the top IIoT providers since 2016

Gartner ➤ *5 x Hype Cycles 2020 reports: Internet of Things, Emerging Technologies, Embedded Software & Systems, Application Services.*

Gartner ➤ *Reference vendor for Industrial IoT Gateways and Digital Twin Enabling Technology Providers (Market Guides 2020)*

Gartner ➤ *Vendor to Watch: Digital Twins Providers (Market Trends: Software Providers Ramp Up to Serve the Emerging Digital Twin Market 09.2019)*

FROST & SULLIVAN ➤ *New Product Innovation Award 2020 – Most Innovative European Edge Integration Platform for IIoT (12.2020)*

FORRESTER ➤ *The only reference vendor for both IoT Gateways and IoT Platforms (Forrester TechRadar Internet of Things 02.2016)*

Growing Market Recognition
200+ Customers, 30+ Certified Partners adopting Alleantia IIoT

Automotive	Chemicals (personal wellness)	Energy	Transportation
• Integrated production	• Integrated production	• Smart manufacturing	• Asset Monitor
• Smart manufacturing	• Predictive maintenance	• Predictive maintenance	• Fuel & Emission reduction
• Predictive maintenance			• Integrated Supply Chain

BOSCH VHIT: Top Efficiency through Data
Digital Twins for Operational Efficiency

Target: OEE & productivity increase

- **Phase 1 (Completed):** increase OEE +10% with RT monitoring

- **Phase 2 (Starting):** Increase OEE +8% with AI, ML, Predictive Maintenance

- **Advanced optimisation** in machining process

- Advanced **maintenance** strategies

Brembo: Global Industry 4.0
State of the art Shop-floor Industry 4.0

Targets: No-Stop Production and Costs Reduction

- Embedded **augmented reality** in processes design

- **Deep learning** in machining process

- Advanced **maintenance strategies**

- Total **quality** management

Ansaldo Energia: the I4.0 LightHouse Plant
Predictive Maintenance in high-end discrete production

Targets: Predictive Maintenance, Predictive Quality, Reduction of Operational Costs

- **All** blading machines production **fully connected.**

- **Deep learning** in machining process for critical components

- Advanced **maintenance strategies**

- Data-driven **real-time quality control**

Paglieri – cosmetics and personal hygiene
The smart packaging for just-in-time production

- **Full integration** order-to-delivery

- **Big Data Analytics** of IoT data on **SAP HANA** on premise

- Advanced **production management** strategies

- **Remote maintenance** from machine supplier for higher availability

Connected Ships for Grimaldi Lines
Analytics and Tracking for Smart Transportation

- **150 vessels to** retrofit

- **Energy** monitoring and optimization **– Hybrid vessels**

- Advanced **maintenance strategies**

- Advanced **tracking for logistic optimization**

What's inside the box ?

Easy to setup, very powerful and versatile IIoT Gateway
Plug&play device & apps connection, zero-code configuration

Large variety of PLC-CNC-Sensors connectivity
30+ different protocols, 100+ automation vendors supported

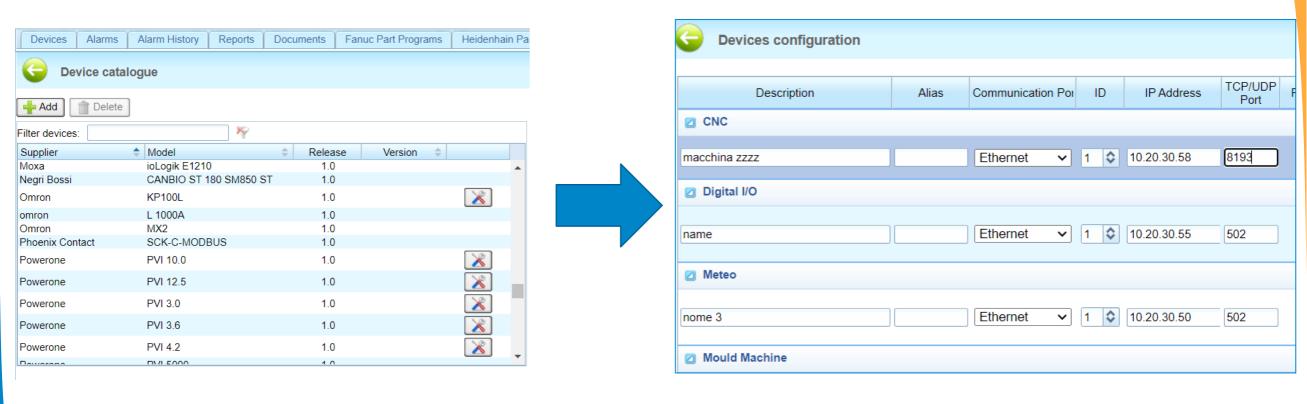**CNC & Robot Controllers**

PLC, Sensors & other devices

Plug & Play device connectivity through 'drivers'
If equipment driver is available, 10 secs to connect

Many integration options for partners' and customers' apps
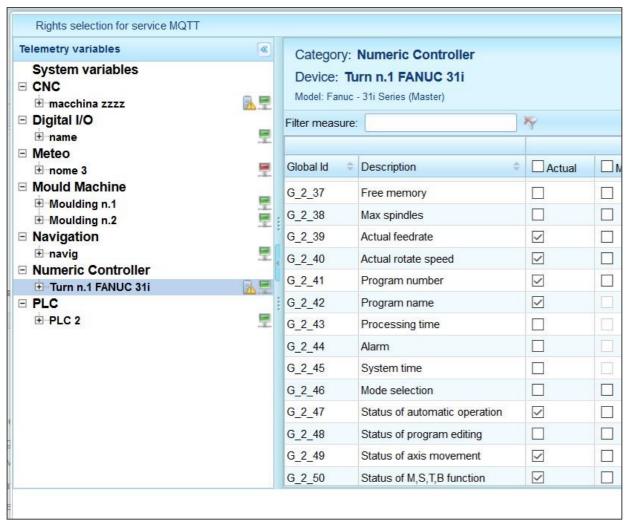## On prem, on cloud, multiple 'broadcasting'

Each interface has selectable data access rights
Full control by End Users on shared data sets and destinations

The Library of Things: global repository of 'public' drivers
Each user can also have its own 'private Library' of drivers

What's inside a 'XPANGO driver' ?

Communication protocol

Data exchange setup parameters

Data Collection Info (the device data)

On-edge rules (machine / control logic)

Data-driven Alarms and Events

Device User Manuals and Instructions

001001
101010
110101

Alleantia
ALL <THINGS> JOINED

Driver Generator

Parser Excel, CSV, EDS, EthernetIp, Fins, Melsec, Modbus, S7, MTConnect, OpcDA, OpcUA

⬆ Upload   ⬇   ➕ Add in Catalog   ⬇ Save

* Required fields

▾ General

Setup parameters

Communication protocol

Choose the protocol s7

Device Information

Supplier *	Siemens
Model *	Evaporatore 1
Category *	PLC
Version *	22
Language *	en
Release Version (major,minor)	1 , 0

Communication

Protocol *	s7
Net folder supported	☐
Serial supported	☐
Ethernet supported	☑
Delay between requests	1 ms
Batch read enabled	☑

Alleantia
ALL ‹THINGS› JOINED

Data Collection Info

▼ Variables	☑						
+		▼	▼	▼	▼	▼	▼	▼

$		Name *	Section	Category	Data Block Num	Memory Area *	Address *	Bit/length String	Da
1		WORD ALLARMI 01			70	Data Block	0		INT
2		WORD ALLARMI 02			70	Data Block	2		INT
3		WORD ALLARMI 03			70	Data Block	4		INT
4		WORD ALLARMI 04			70	Data Block	6		INT
5		WORD ALLARMI 05			70	Data Block	8		INT
6		WORD ALLARMI 06			70	Data Block	10		INT
7		WORD ALLARMI 07			70	Data Block	12		INT
8		WORD ALLARMI 08			70	Data Block	14		INT
9		WORD ALLARMI 09			70	Data Block	16		INT
10		WORD ALLARMI 10			70	Data Block	18		INT

Alleantia
ALL <THINGS> JOINED

Virtual Variables

$		Name *	Section	Expression *	Data Type *	Measurement Unit	Scale	Offset	Minimu
32768		Combined Alarm Pressure		$11 gt 0.5 and $1	BOOLEAN				
32769		Average Temperatures		($23 + $24 + $25	NUMERIC				
32770		Alarm Average Temp		$32769 gt 400	BOOLEAN				

On Edge Rules

Alarms

Variable	Section	Delay ON (ms)	Delay OFF (ms)	Description *	Expression *	Remove
Alarm Average Temp				Alarm Temp Avg	$32769 gt 400	−
Combined Alarm Pressure				Alarm Combined Pressure	$11 gt 0.5 and $12 gt 0.8	−
WORD ALLARMI 03				Alarm 03	not $3	−
WORD ALLARMI 02				Alarm 02	not $2	−
WORD ALLARMI 01				Alarm 01	not $1	−

Data Driven Alarms

Alleantia
ALL <THINGS> JOINED

Thanks!

© 2020 Alleantia srl

Headquarters
Via G.Malasoma 26
56121 Pisa (PI) Italy

Registered Office
Via Tosco Romagnola 136
56025 Pontedera (PI) Italy