

Turn-key IoT



IoTize mission: Connect electronics to apps & cloud



Bypass obstacles that would require years of R&D.
Connect electronics instantly to the **cloud** and to **mobile apps**.



Shared benefits

End users

Better, more user-friendly apps

Advanced features

Guaranteed cybersecurity



Manufacturers

Eliminate risks, reduce time-to-market

Improve user experience

Dramatically reduce development costs

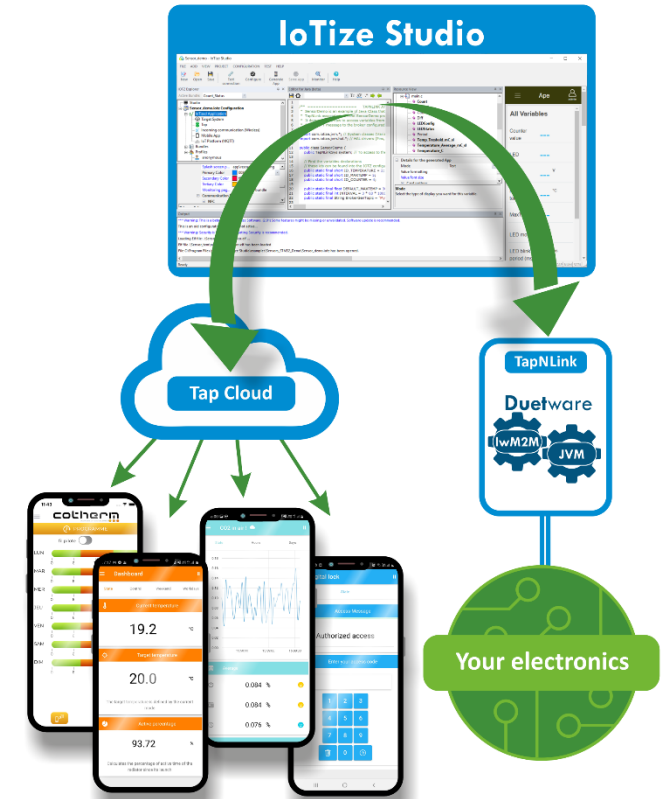
Unique Features

Automatic Mobile App Generator
(or universal, adaptable App)

Instant connection to microcontrollers
(patented) or industrial equipment

Smart use of NFC combined with other RF protocols
(BLE,WiFi, Lora, LTE ...)

The only global solution that manages the App, the Cloud,
the cybersecurity, the radio, the user's rights, etc...



A huge, growing market

Forecast 2030 : estimated market of 75 billion devices

Three priority markets	European Union (million units)	Worldwide (million units)
HVAC (without water heaters)	20	100
Industrial equipment	15	80
Domestic appliances	410	1600
Totals for these markets:	445	1780

'Miscellaneous' targets are even more numerous:
smart sensors, pumps, metering, electric tools, ...

The Team



Maël COLAS
General Manager, HEC Paris

Previously managing director and partner of CEFI, an integrator of high value-added IT solutions, 15 years of management at SFR



Francis LAMOTTE
President, Mines Paris

Founder Iotize in 2017, previously founder and CTO of Keolabs/Raisonance, expert in wireless technologies and software solutions for microcontrollers.



Steve GUSSENHOVEN
Marcom Manager

University of Idaho, Former Marketing Communication Manager for Keolabs and Raisonance



Stéphane LEONARD
CTO, Ensimag

Previously co-founder of a startup developing mobile applications in events, then freelance developer.



Eduardo Trejos
Sales Manager

University of Texas and Grenoble Ecole de Management, Sales manager for Bonitasoft

Customers (among others)



Schneider
Electric



Air Liquide



Cotherm

Two 'SE branded' products made
By IoTize : Bluefer and Wifer

Use of our 'Tapiocas' and
Apps

Software Licensing for
electric heaters.



International recognition



Embedded systems
Innovation of the year



Cartes: Smart card & cybersecurity
The IoT solution of the year

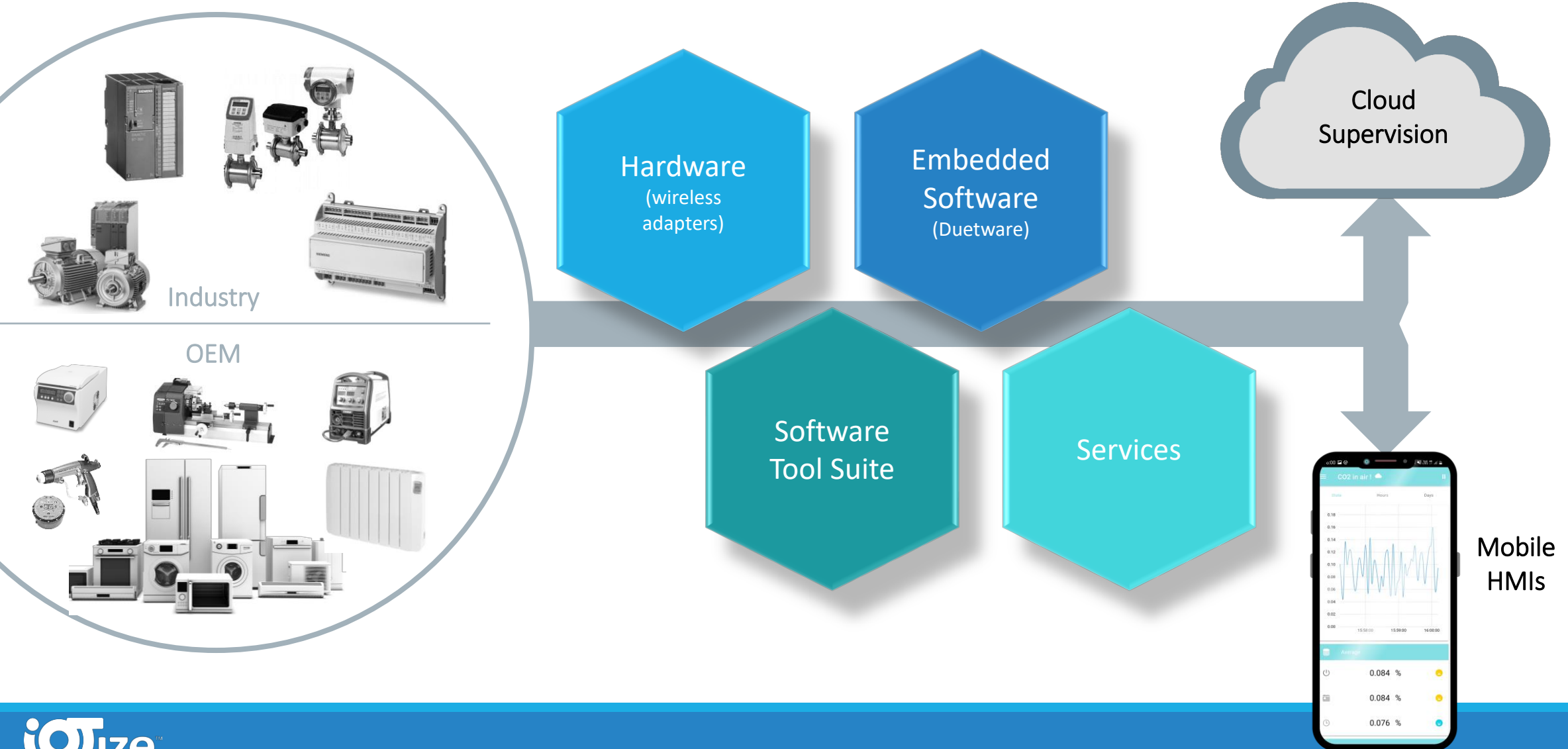


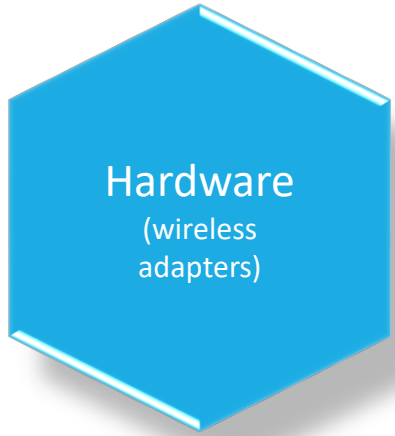
NFC Forum
Best Emerging Concept 2018
Best NFC application 2020



Cover of EE Times

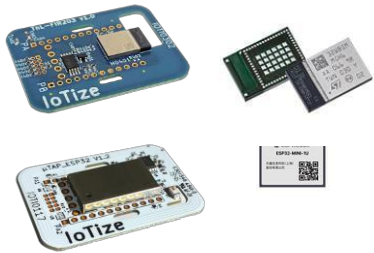
The IoTize Solution



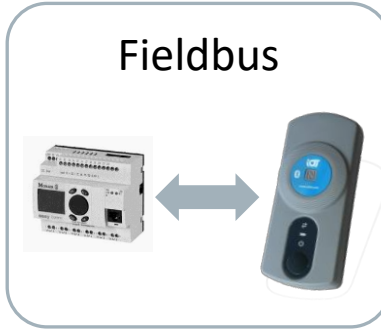
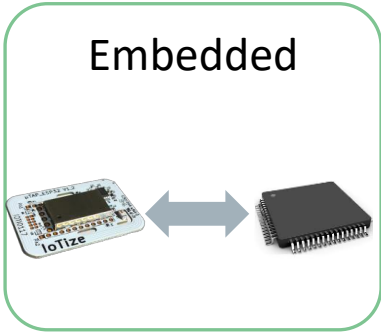


Hardware
(wireless adapters)

OEM



TapNLink &
3rd-party modules



TapNLink

Tapioca &
TapNPass

App Generator (APIs)

Configuration Tools

Java Tools

Firmware (Duetware)

Industry
& HVAC



Gateways to
mobiles or Cloud

Hardware
(wireless adapters)

The Tapioca series



		Local wireless channels: NFC + BLE + WiFi			
				+ Long range channel	
		Standard casing	IP67 casing	IP67 with LoRa	IP67 with LTE-M/NB-IOT
Wire connectivity	RS-485	TpC-FS4W123	TpC-PS4W123	TpC-PS4L123	TpC-PS4M123
	RS-232	TpC-FS2W123	TpC-PS2W123	TpC-PS2L123	TpC-PS2M123
	USB	TpC-FS0W123	TpC-PS0W123	TpC-PS0L123	TpC-PS0M123
	CAN 2.0	TpC-FC0W123	TpC-PC0W123	TpC-PC0L123	TpC-PC0M123
	Ethernet	TpC-FE0W123	TpC-PE0W123	TpC-PE0L123	TpC-PE0M123
	RS-485 + Ethernet		TpC-PE4W123	TpC-PE4L123	TpC-PE4M123

TapBus: a new family for the Industrial IoT

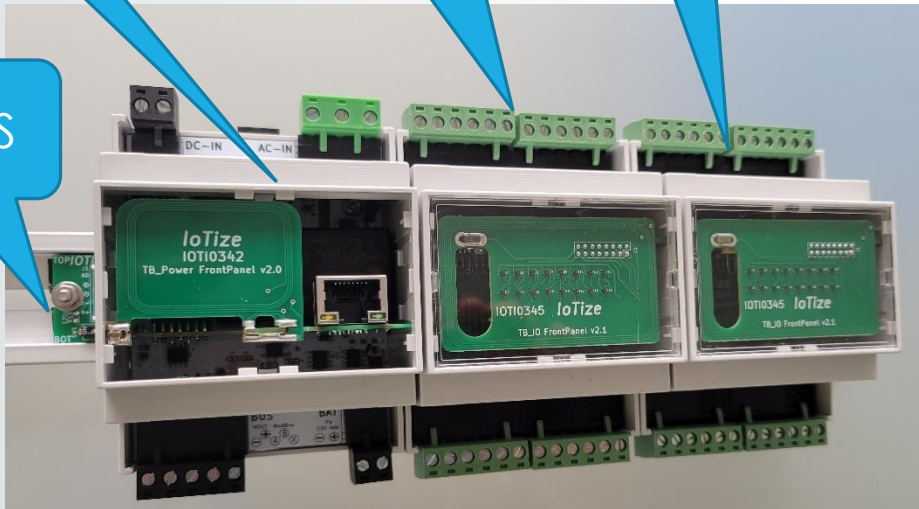
Hardware:
wireless
adapters

Power
Supply

16 analog
inputs

12+4 logic
inputs/outputs

Rail-BUS



- Powered by Duetware,
- Configurable by Studio, App Creator...
- Java allows simple automation and easy connectivity to Cloud platforms.
- Modules linked by Modbus,
- Optional rail for modbus+power distribution (or alternative with ribbon cables).
- Automatic addressing (simplified modbus configuration)
- 3 DIN-rail modules types:
 - Power supply (integrate a RS485+Ethernet Tapioca) with battery management,
 - Logic: 12 Inputs + 4 outputs.
 - Analog: 16 Inputs.
- Input voltage: AC-220V or DC-24V (up to 36V),
- Output: 5V or 12V (20W)
- Optional LoRa and LTE-M (extension boards for the power supply module)

Samples in 2023Q3

Hardware:
wireless
adapters

TapBus family: industrial IOs modules

Logic (LI1204)	Analog (AI16)
12 inputs + 4 outputs	16 inputs
NFC + Modbus connectivity	NFC + Modbus connectivity
Outputs: electronic switches State, pulse or PWM	ADC: 24 bit (typ. Accuracy < 0.1%)
Configurable inputs: digital, timer or counter (sampling @1kHz)	Configurable inputs: 4-20mA, 0-10V, 0-2V, Pt100/Pt1000 (2 or 3wires)
Standalone mode (NFC only) or modbus server	
Power supply: 5V or 12V (from 4.5V to 15V)	
Embedded Java + Duetware	

Samples in 2023Q3

Hardware:
wireless
adapters

TapBus Power

Wire connectivity: RS485 + Ethernet

Wireless connectivity: NFC + BLE + WiFi

Input voltage: AC 230V or DC 24V

Output Voltage: DC 12V or 5V (20W)

Connectable to other modules via RailBus or ribbon cable (picoflex)

Battery supervision: charge, recharge and test ((4-8 Ah, lead battery)

Drive up to 64 IO modules.

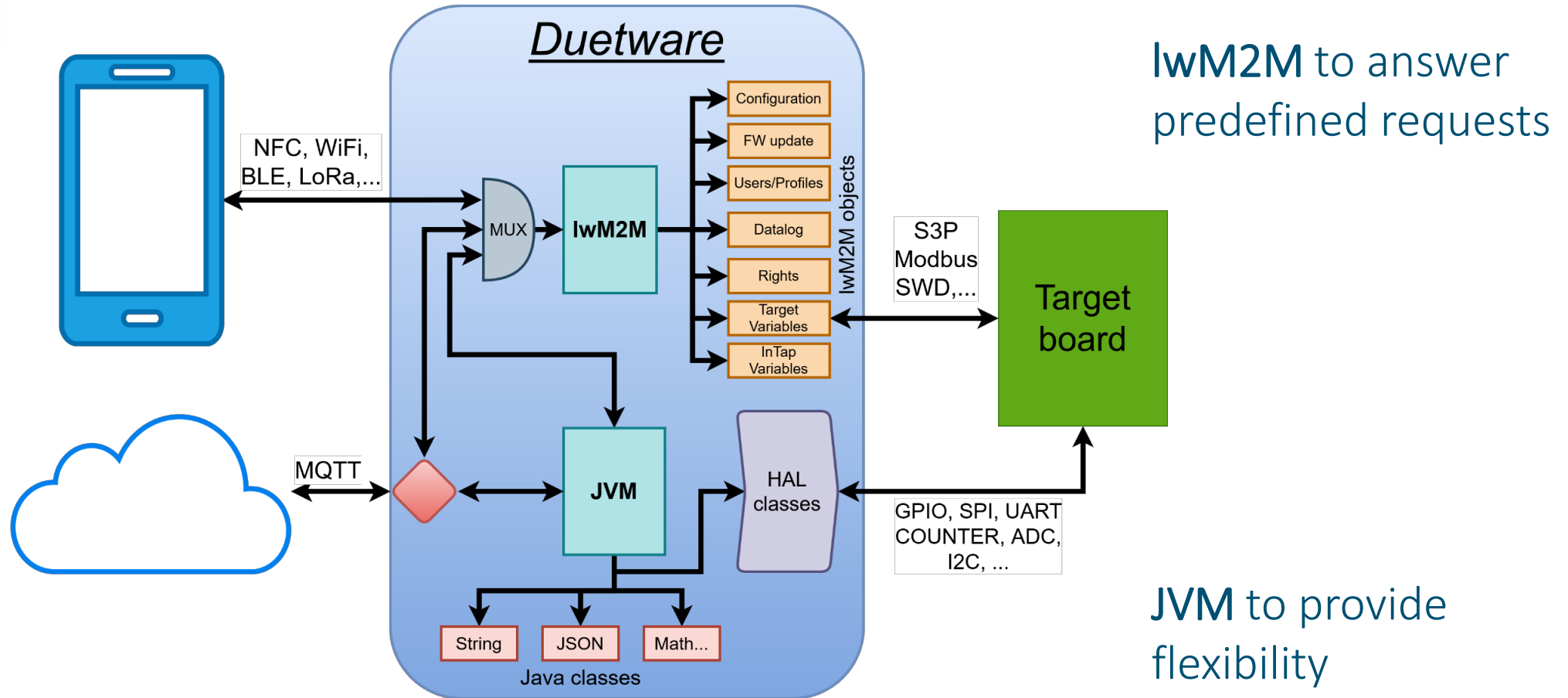
Available options:

- modem for LoRa
- Modem for LTE-M / NB-IoT

Samples in 2023Q3

Embedded Software
(Duetware)

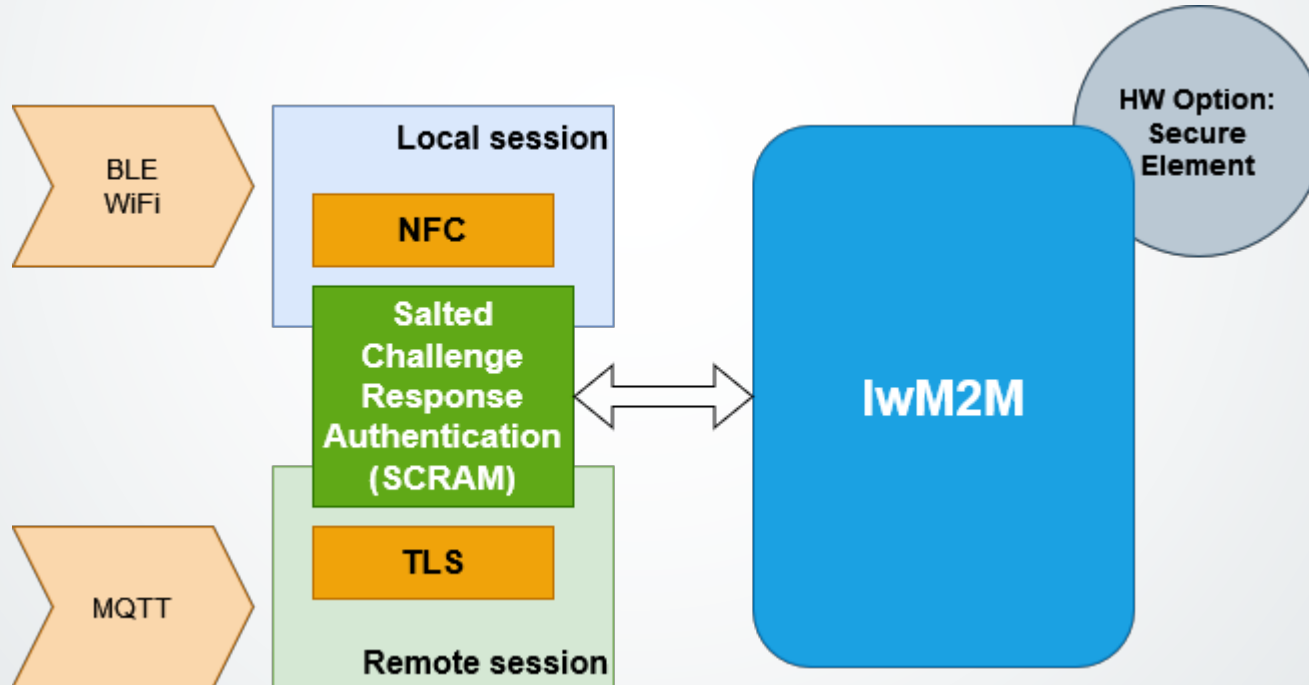
Powerful, flexible dual-machine firmware



Cybersecurity

Dual layer: SCRAM reinforced by TLS and NFC

Embedded
firmware:
Duetware





Software Tools

New ▶

Tool	Platform	Use
App Editor	Server app	Create an enhanced mobile app.
App Generator	Server app	Generate Ionic project, then an APK or IPA.
Tap Manager	Mobile app	Universal, adaptable mobile app.
IoTize Studio	Win exe	Device and HMI configuration, test. CLI utilities (command line).
Java Debugger	Win exe	IDE with Java development suite: IDE, linker, debugger

Embedded Software
(Duetware)

Solution software bricks

Operating System		
lwM2M	Variables	String/JSON
	User profiles	Comm/HAL
	ACL	Math
	FUOTA	lwM2M command
	Certificates	MQTT/Socket
		Java Virtual Machine

Protocols		
Communication	TCP/IP	SSL
	MQTT	SCRAM
	CoAP	Signed Single Packet
	LoRaWAN	
		Security

Wireless Comm.		
Short range	NFC	LoRa
	BLE	LTE-M
	Wi-Fi	NB-IOT
	Zigbee	
	Thread	
		Long range

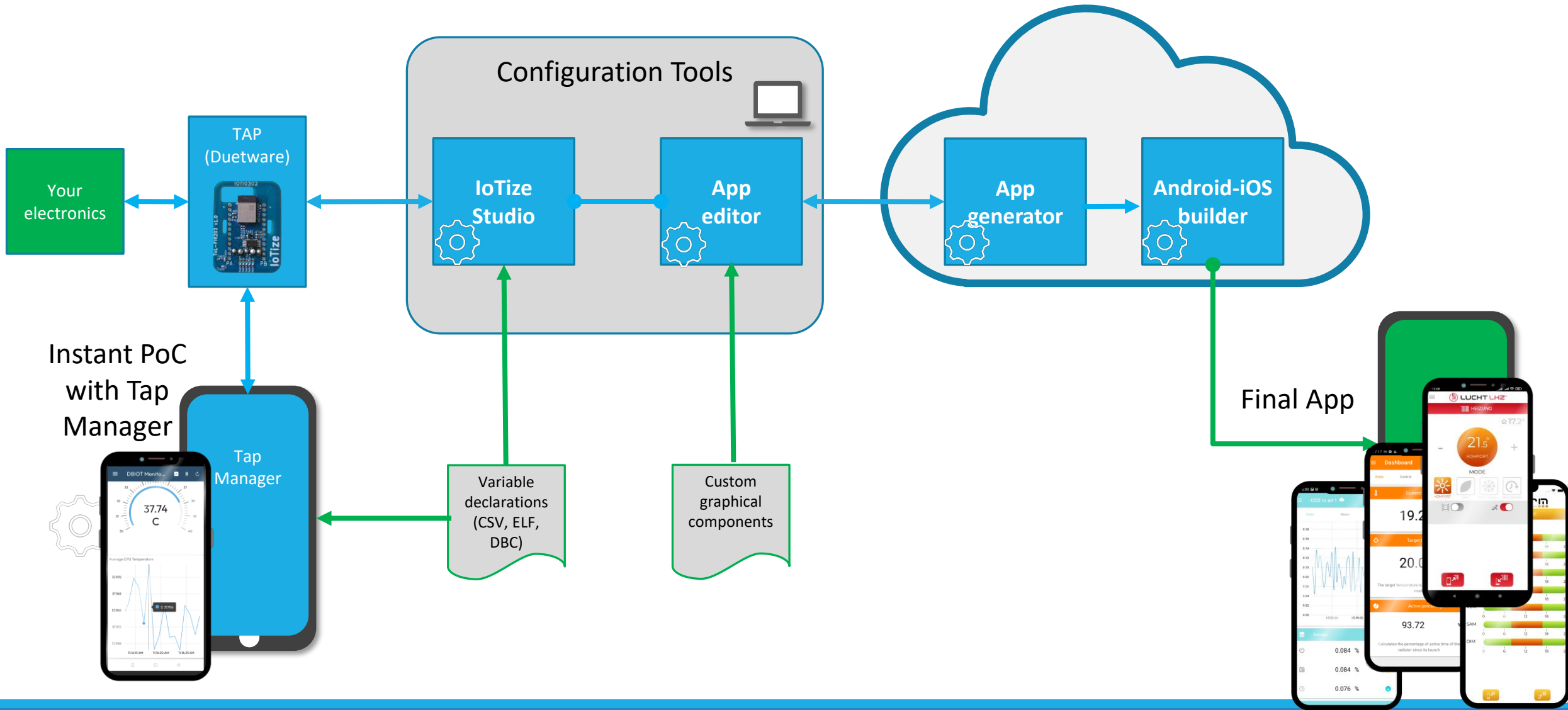
Wire Comm.		
Serial	USB	Modbus RTU
	RS232	Modbus TCP
	RS485	CAN
	Ethernet	SWD
	SPI	SPI
	CAN	

Software Tools		
Configurator & Generator	Format loader (ELF, DBC, ...)	IDE
	Config. editor, loader	Static linker
	Tester	Simulator
	App generator	Real time debugger

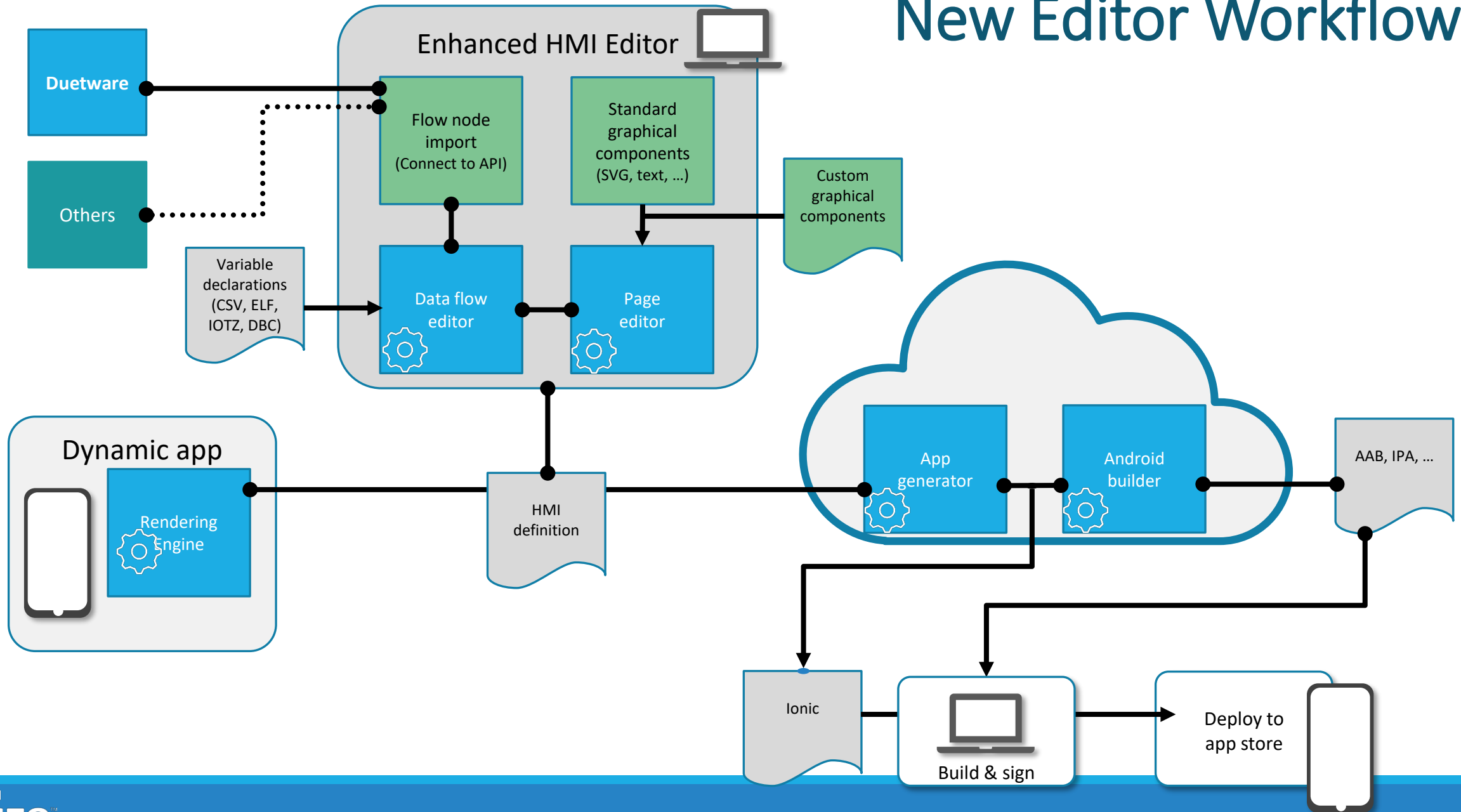
Mobile Apps		
Languages & OS	Java	Graphic elements
	Android	Utilities
	iOS	Client protocols
	Node	
		App generator libraries

Software Tool Suite

“No Code” software Solution



New Editor Workflow



App Editor:

Main characteristics



Interactive

WYSIWYG, drag and drop,
No Code/ Low Code



Open

API to import graphical components
and dictionaries of variables



**Manages
complexity**

Mix of data, timing, actions, colors,...

Dashboard Editor: Layout view to organize page contents

Components

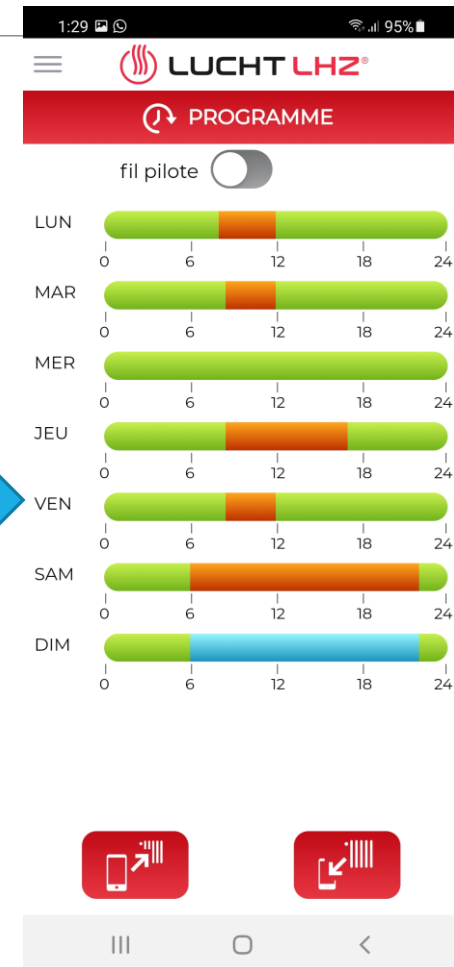
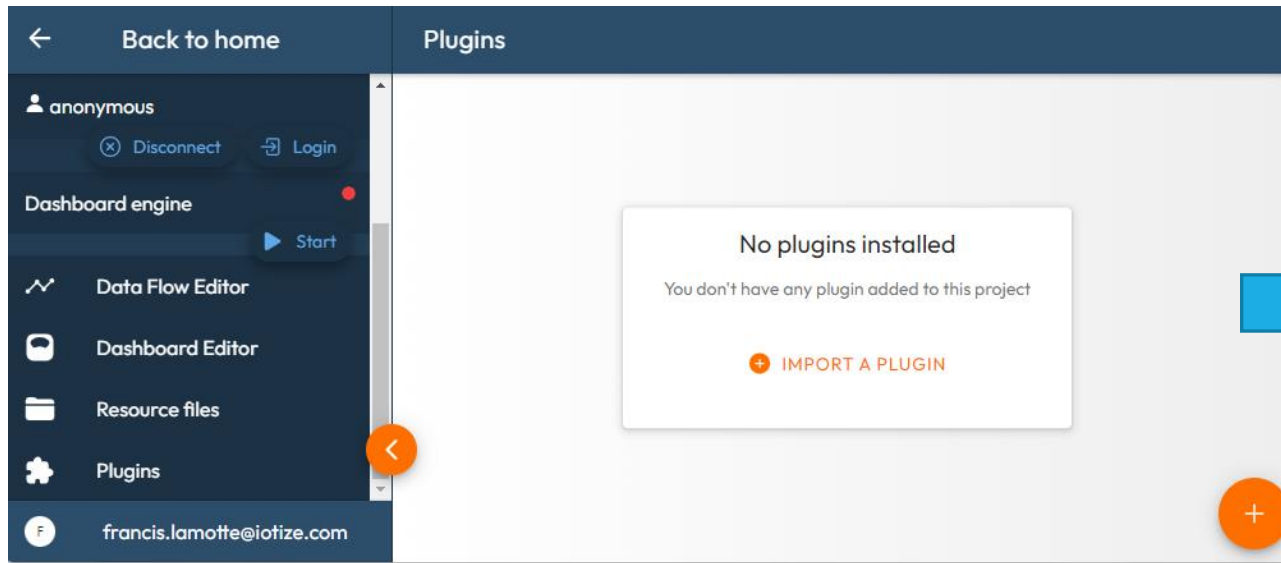
Static HMI Items

Layout & organization

Machine HMI (r/w)

The screenshot displays the Dashboard Editor interface. On the left is a sidebar with navigation options: 'Back to home', 'sensor-demo-f', 'BLE', 'Sensor demo', 'IoTize004100000003', 'admin', 'Disconnect', 'Logout', 'Dashboard engine', 'Data Flow Editor', 'Dashboard', and 'Resource files'. The main editor area shows a 'Nested Layout' with two gauges: 'Temperature' (27.4 °C) and 'Voltage' (3.27 V). Below these is a 'Preview' section showing a line graph. On the right is a 'Components' menu with categories: 'Text and images' (Heading, Paragraph, SVG), 'Layout' (Accordion Group, Card Layout, Flex Container, Flex Item, Horizontal layout, Ion Item, Page Center Container, Tabs, Vertical layout), and 'Managed Tap controls' (Config Item, Tap Connection State Item, Tap Login, Bits, Buttons, Color, Date & Time, Push Button, Range). The interface includes a 'Preview' toggle and a 'VARIABLE' dropdown.

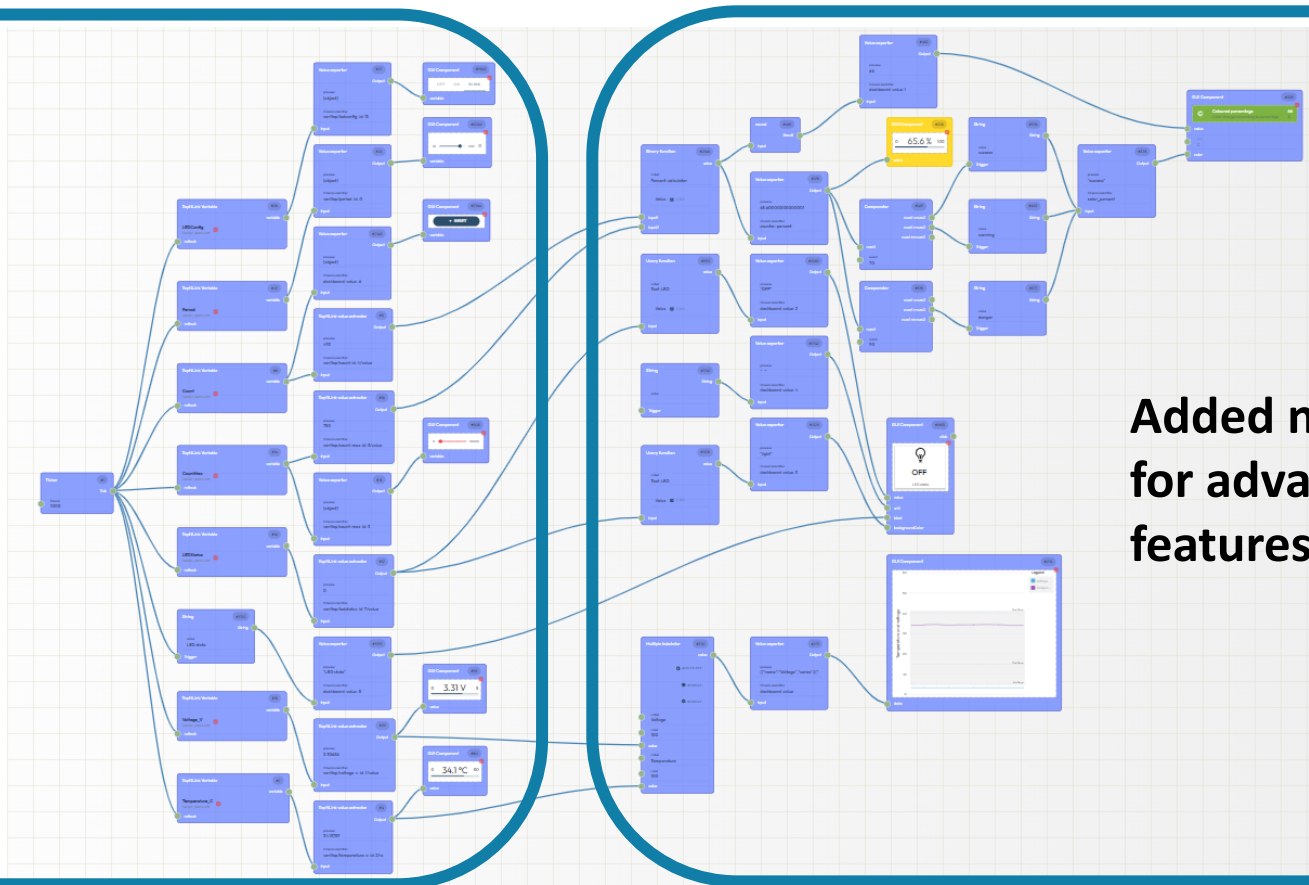
Page Editor: Add your own advanced plugin!



Flow Editor:

An optional tool for advanced features

**Nodes
automatically
generated**

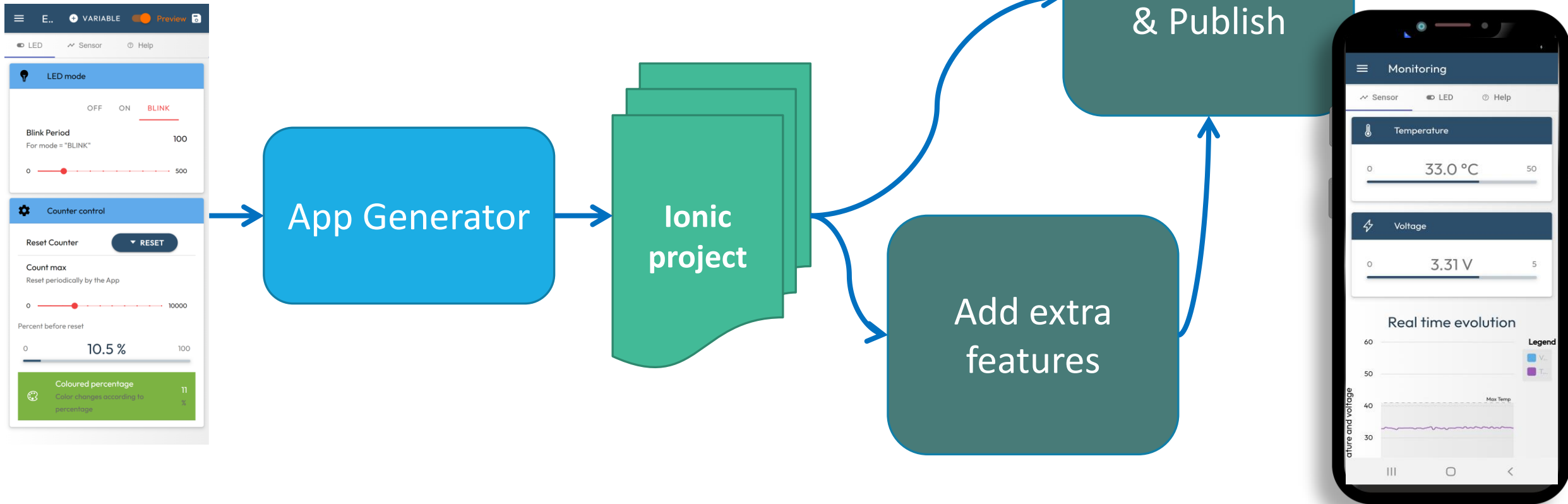


**Added nodes
for advanced
features**

3 steps

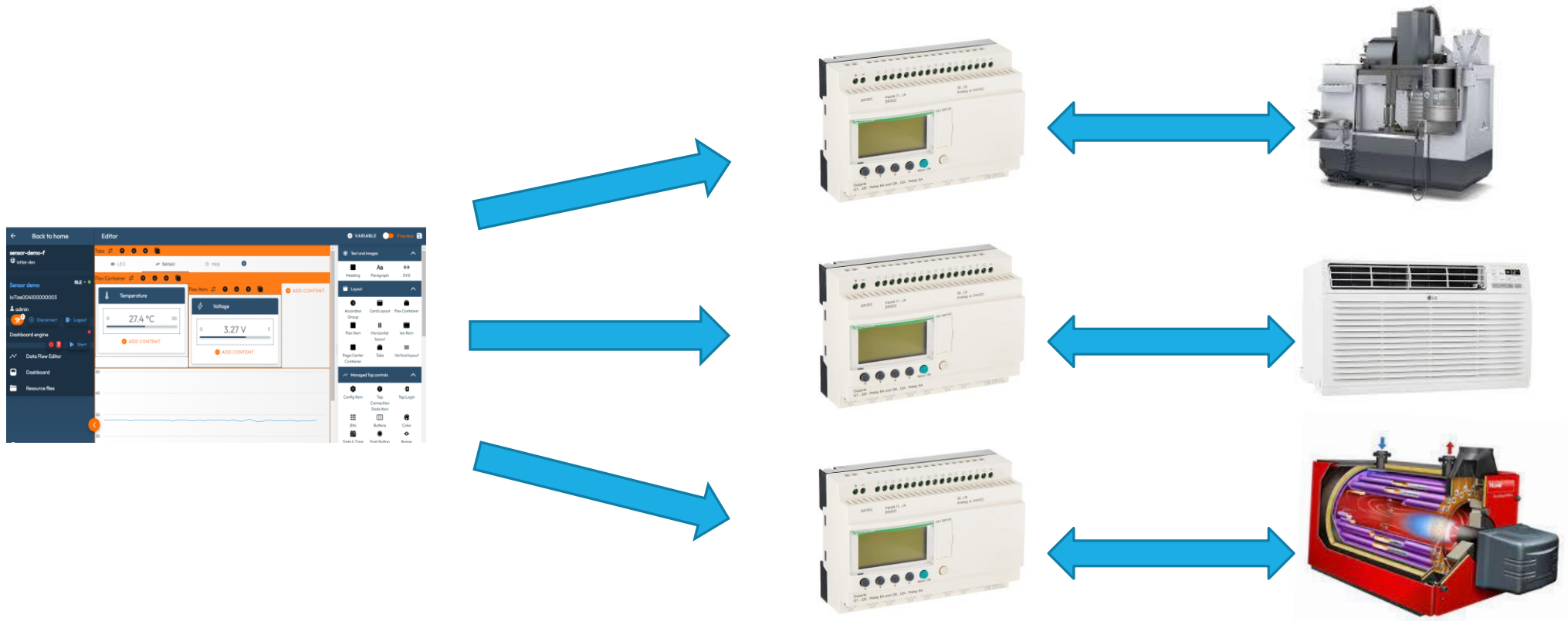
Step	Context
Preview	<ul style="list-style-type: none">• Immediately in the Dashboard Editor• WYSIWIG edition
Dynamic Test	<ul style="list-style-type: none">• With a dynamic App (Tap Manager or equivalent)• Multi-device, multi-HMI, ...
Static App	<ul style="list-style-type: none">• Specific to one (or a few devices)• Customer dedicated App (published or not)

Last Steps: From the tools to the stores



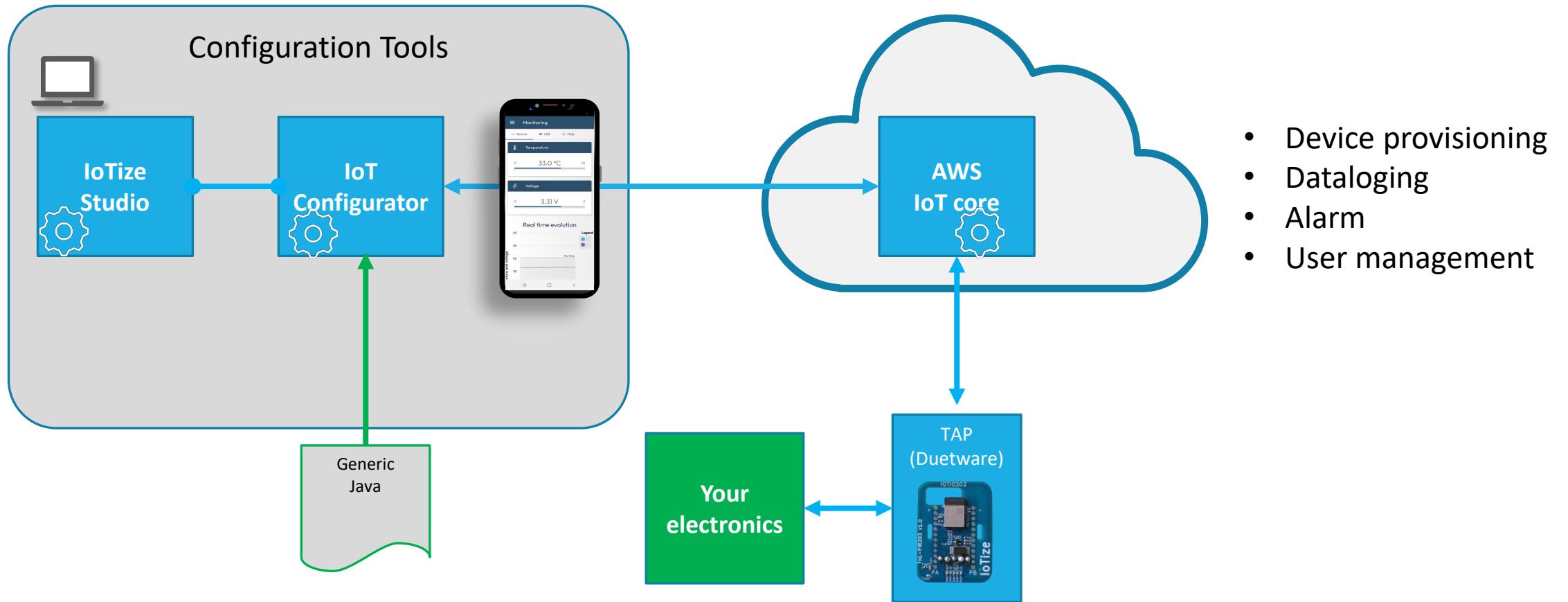
Use cases for the App Editor + static App

Example of PLC integrators



New IoT Platform configurator

“No Code” configurator

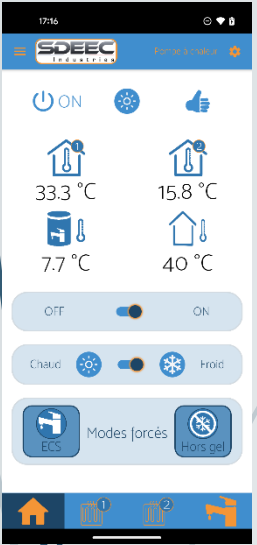


“No Code” IoT AWS Configurator



Environment Studio and Java tools

Two solutions to connect your electronics to a mobile App and/or the Cloud



Your Electronics



Connect the Tap to your electronics

Dedicated App

Configure the Tap and variables with Studio → Generate App Edit Java

Adaptable App

Configure variables with the App



WiFi
LTE-M
LoRa



NFC
BLE
WiFi

Test and go!

Environment
Studio and
Java tools

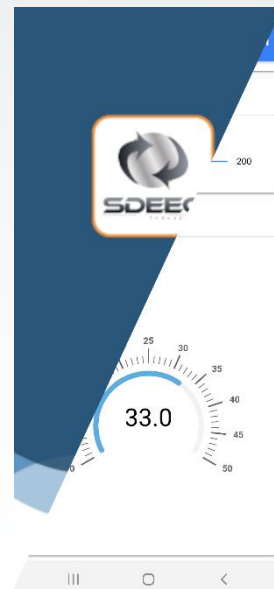
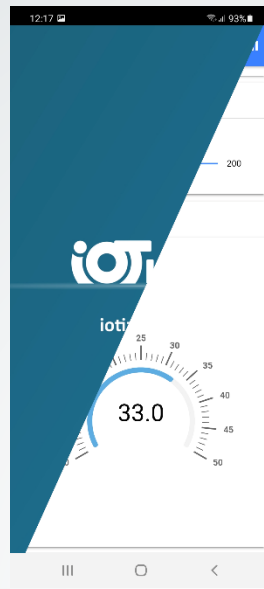
Advanced HMI graphical Editor

From 'No Code'
to 'Low Code'

- Import: CSV, DBC, ELF, ...
- Stream editor to combine variables, formulas, ...
- Flexible object editor

The screenshot displays the iOize HMI graphical editor interface. On the left, a 'Data streams' panel shows a flowchart of data processing blocks. The main area is split into a preview window and an 'Editor' window. The preview window shows a mobile-style HMI screen with several 'Counter percentage' widgets displaying values like 36, 366, 669, 760, and 88.0. The 'Editor' window shows the configuration for a 'Counter percentage' widget, including a 'Horizontal layout' container, a 'Value Unit Label Card' with 'Counter' and 'Maximum' labels, and a 'Settings' section with 'Count max' and 'Monitoring period' sliders. On the right, a 'Tap components' palette lists various UI elements such as Bar Chart, Gauge, Push Button, Table, Bits, Linear Gauge, Range, Number Input, Buttons, Line Chart, Select, and Toggle.

Environment Studio and Java tools



	Adaptable App	Dedicated App		
	TEST/RELEASE	PoC	BETA	RELEASE
App	Configurable	Generated	Customized	Published
Connection(*)	Modbus RTU/TCP	Modbus RTU/TCP	Modbus RTU/TCP	Modbus RTU/TCP
Branding	lotize / Partner	'MyCompany'	'MyCompany'	'MyCompany'
Graphics	Standard	Standard	Customized	Customized
Operations	Configure with final App	Config on Studio +generate	Adapt generated source files	Test and publish
Development	10 min	30 minutes	2-3 days	2-3 days

(*) wire connectivity could be also based on CAN, USB, RS232,...

Environment Studio and Java tools

A comprehensive set of tools to customize the Tap

The screenshot displays the IoTize Studio IDE interface with several key components:

- Code Editor:** Shows the `readerST39R16.java` file with Java code for SPI communication. The code includes methods for writing registers and multiple registers.
- Disassembly View:** Displays the assembly code for the `writeMultipleRegister` method, showing instructions like `invokevirtual`, `ireturn`, `iconst_0`, `istore #4`, `lload_2`, and `bipush #64`.
- Debug Output:** A table showing the execution timeline of the program.

PC	Time	Description
-	0s.000ms.000	Starting debug process (Clock frequency: 0.000000 MHz)
0000	0s.000ms.000	Loading C:\Users\francis.lamotte\OneDrive - IOTIZE SAS\Sonceboz\ST25R3916\ReaderTest...
0084	0s.000ms.000	Step Into Source
0088	0s.000ms.000	Step Into Source
0503	0s.000ms.000	SPI port initialization with clock frequency= 4000000, modes= 1 and CS
0637	0s.000ms.012	Step Over Source
0647	0s.000ms.013	Step Over Source
0659	0s.000ms.014	Step Over Source
0665	0s.000ms.014	Step Over Source
066A	0s.000ms.015	Step Over Source
- IoT Explorer:** Shows the project structure for `Sensor_demo.iotz`, including bundles like `Count_Status` and `Count_Control`.
- Resource View:** Displays the resource files for the `main.c` bundle, such as `Count`, `LEDStatus`, and `Temperature_C`.
- Control Panel:** A UI element showing a toggle switch for `Count Status` currently set to `OFF`.
- Output Console:** Shows system messages, including a warning about the beta version and the successful loading of the application.
- Notification:** A yellow banner at the bottom indicates "Monitoring is paused" and "Device is not connected. Changes will be sent when device is connected."