

COMAU

Comau Robotics: An Open Architecture For Industry 4.0

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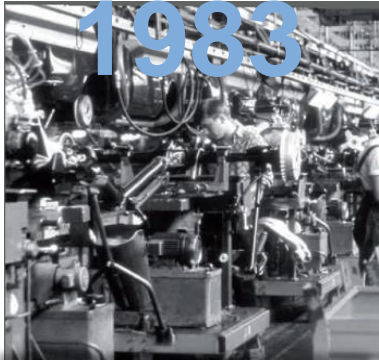


Our History

Pushing the boundaries of manufacturing for 50 years

1973

1983

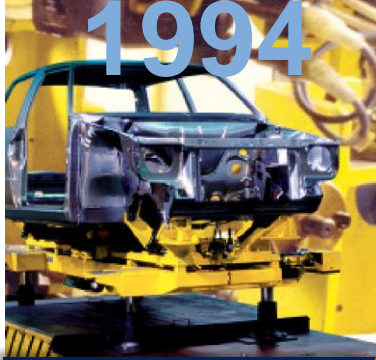


Our roots

- Foundation of Consorzio Macchine Utensili
- Robogate: the very first robotized system installed worldwide (FIAT, GM, Chrysler)
- First hydraulic robot

1984

1994



From Mass Production to Flexible Automation

- First FMS (Flexible Manufacturing Systems)
- Creation of High Speed Machining technologies
- Fire: Fully Integrated
- Robotized Engine assembly line in Termoli
- Creation of the first laser robots for GM

1995

2005



Going Global & Expanding in Machining Technology

- Expansion to North America (Pico acquisition), South America and Asia
- First Open Robogate framing systems
- First Horizontal Machining Centers with linear motors (1G and Urane)

2006

2016

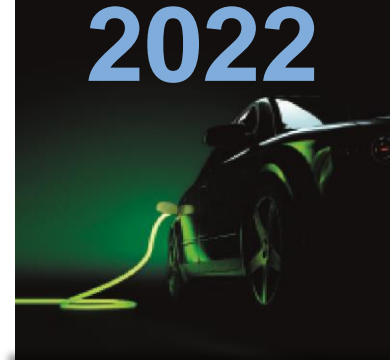


Drive Innovation in Automation & Manufacturing

- Butterfly Systems for chassis welding
- Additive technology applied to engines for emissions and performance improvement (PTWA) Collaborative robotics

2017

2022

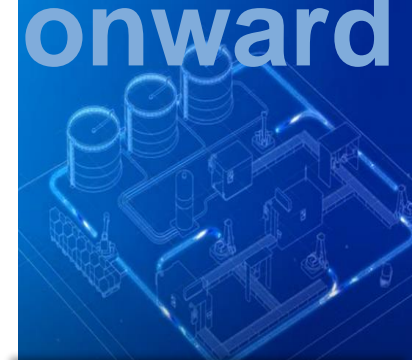


Start of E-Mobility Journey

- Opening e-mobility competence center in China
- First EV business line automation to Shanghai
- First e-drive/e-motor assembly projects
- Battery module and pack assembly lines
- Kick off battery cell formation developments

2023

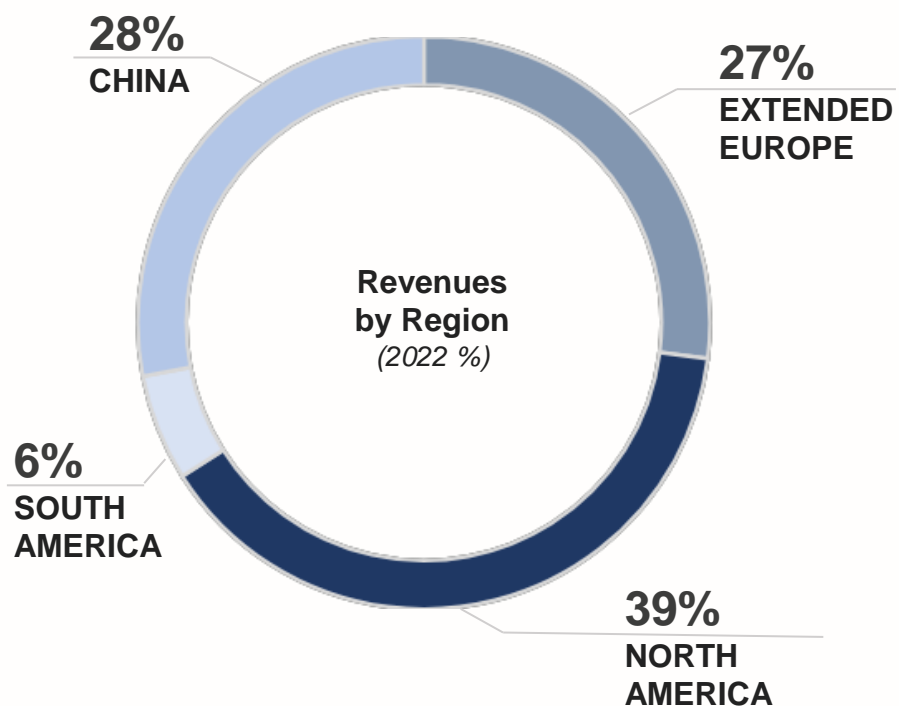
onward



Accelerate Digital Transformation & Sustainability Initiatives

- Launch of Portfolio solutions for battery cell formation processes
- Invest in innovative digital services & materials
- Develop battery recycling solution
- Invest in advanced sustainable robotics portfolio
- Celebrate 50 Year Anniversary

Key Figures



3700

Employees

~50%

Employees with university education level

1200+

Patents

>250

Comau #projects (per year)

>20

Comau #product launches (per year)

>150

Client #products with Comau technologies (per year)

More than 25 K un.

Robots Installed

More than 3 K un.

Machines Centers Installed

25% of

worldwide car bodies

Our global footprint

13
Countries

9
Manufacturing
Plants

6
Innovation
Centers

5
Digital Hubs



Our Expertise by Industry

Competences



- Assembly
- Machining
- Process Technologies
- Special purpose machines
- Logistics
- Material Handling
- Digital

Products



- Robots
- AGV
- Intelligent Robotics Solutions
- Welding Guns
- Machining Centres
- Wearable Technologies
- IoT Platform

High Value Services



- Consultancy
- Aftersales
- Academy and Education

Mobility



Automotive On/Off Highway

- Body in White
- Powertrain Machining and Assembly
- E-Motors and Transmissions
- Battery Tray

e-Mobility



Energy Storage

- Cells
- Modules
- Packs
- Fuel Cells

Sensitive Environment



Food , Beverage & Pharma

- SE Robotics
- Product process traceability

Fulfilment



- Logistic systems
- Material handling

Renewables



- Solar
- Wind
- Hydrogen



Comau – Integrated Robotics

An Open Architecture For Industrial Robots Integration

Main Challenges In Industrial Robots Programming

- **Different skills needed** (usually owned by different individuals) **for programming** an automation cell that includes a **robot and a PLC**.
- To program and configure a traditional robot you need to know and use a **specific programming language (brand dependent)**.
- **Proliferation of HMIs** (1 for each robot)
- Programmers needs to manage a **multitude of SW tools** useful for the configuration and programming of all the devices

Comau addresses the Challenges of Traditional Robot Programming in industrial environments with **2 open architectures:**

- **Comau Direct Control**
- **Comau Next Generation Programming Platform - SRCI**



INTEGRATED ROBOTICS

Direct Control

Integrated to the industrial markets

Direct Integration without Comau Control

General Industry – PLC Direct Control

Rockwell Automation – Unified Robot Control

Metal working, machining – CNC Direct Control

SIEMENS Sinumerik



INTEGRATED ROBOTICS

Next Generation Programming Platform - SRCI

Integrated to the industrial markets

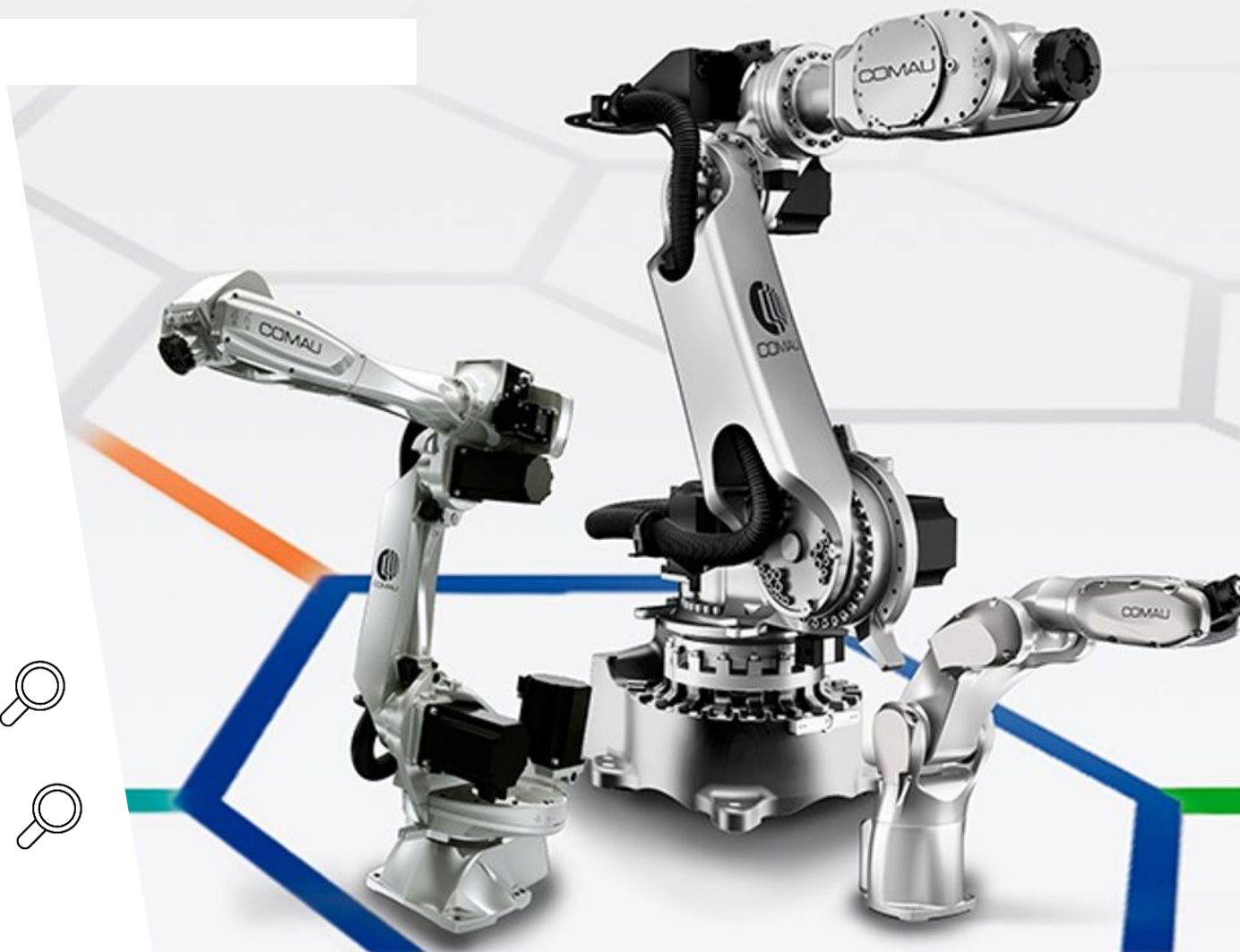
Integration with Comau Control through the newest industrial SW protocol: SRCI (Standard Robot Command Interface) created for configuring and programming Comau Robots from a third party ecosystem such as a PLC.

COMAU - SRCI Details [here](#)

SIEMENS SRCI



Rockwell Automation SRCI *



* Available from Q4 2022

INTEGRATED ROBOTICS

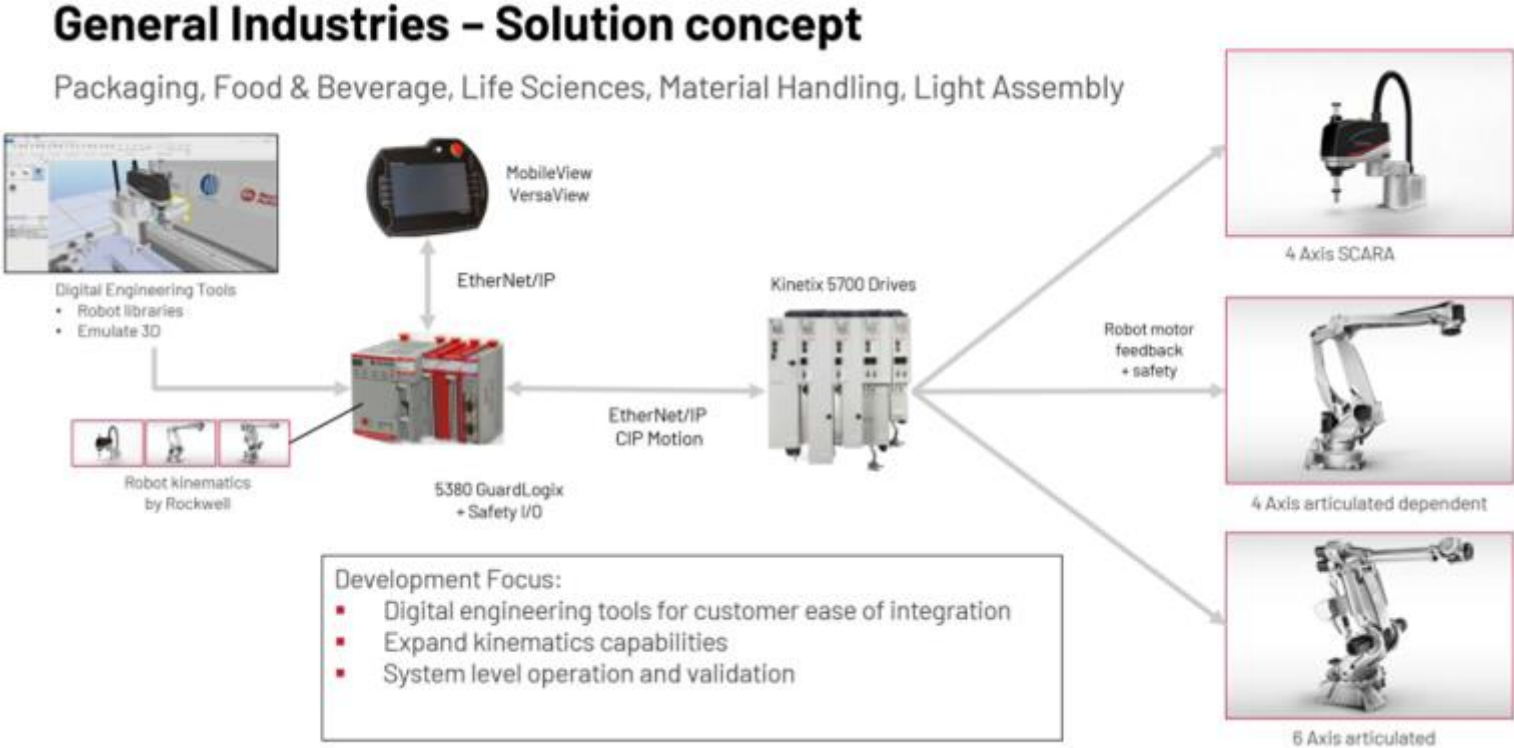


Drive the robot directly with your Rockwell PLC

A faster, simpler way to unleash the power of robots in production with robot integration solutions from Comau and Rockwell Automation

Main advantages of Comau and Rockwell integrated solution

- Less effort with double programming languages
- Simplified robot integration
- Lower training effort
- Easier error tracking
- Modular and scalable
- Less production space needed
- No redundant controller
- Single and deeper HW/SW management for your automation solution
- The centralization of all relevant automation data allows to exploit the ideas of Industry 4.0



INTEGRATED ROBOTICS

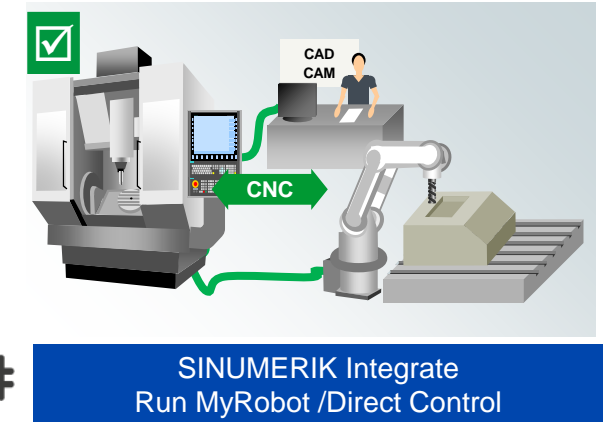


Sinumerik Run My Robot Direct Control

Comau supplies the robot arm and cables, ready to be driven directly by your machine

Run MyRobot /Direct Control

- Drive-based connection of the robot kinematics to the SINUMERIK CNC system (Direct Control concept)
- Setup, operation and programming in the SINUMERIK specific environment (Create my Config, G-Code, programmGuide, ...)
- Available preconfigured setting data for a selection of robots
- Robot-specific programming know-how not required



Features

- Continuous path control with SINUMERIK (Single Controller)
- Connection at mechanical level
- All CNC programming methods are used
- Digital twin with NX-CAM and VNCK
- Remote monitoring diagnosis of the entire process
- Cost-effective monitoring of fault states and integration of in-house service and maintenance processes
- Simple optimization of work processes on machine tools
- Easy synchronized processes between machine tools and robots

SIEMENS

“SINUMERIK provides intelligent interfaces up to fully integrated robot kinematics.”

INTEGRATED ROBOTICS

Comau Next Generation Programming Platform - SRCI



One common library for automation products and robotics providers.



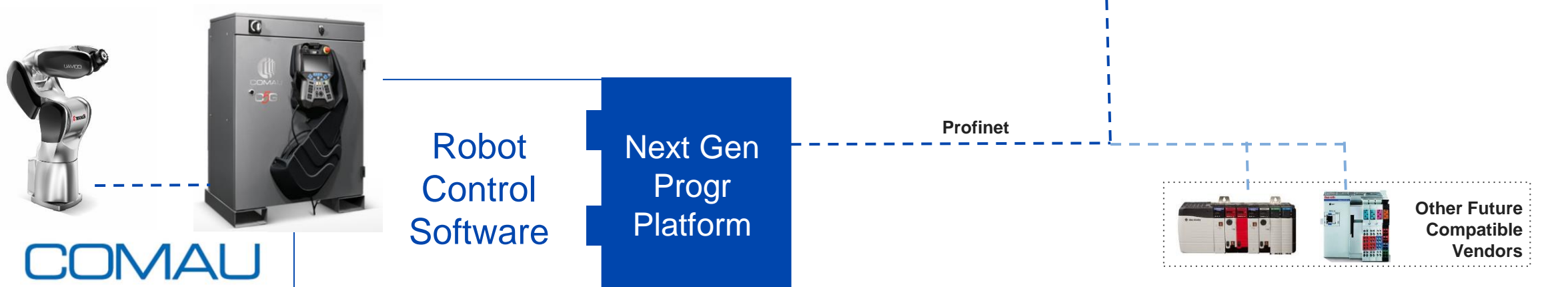
Main Advantages

- No robot specific software or HMI
- No communication specification between robot and automation provider needed
- One only engineering flow for the full automation solution
- A Universal Standard
- Fully integrated with the automation provider ecosystem
- Full simulation stack available - Every Software and Hardware component can be simulated
- No need of real devices to start programming
- Programming time reduction up to 30%
- Integration time reduction up to 40%

Comau & Siemens Architecture for Standard Robot Command Interface (SRCI)



- **Comau** was the first Industrial Robot manufacturer to develop an **SRCI architecture** in **Siemens** environment, from simulation to deployment. This is the **Siemens TIA (Totally Integrated Automation) Portal**.

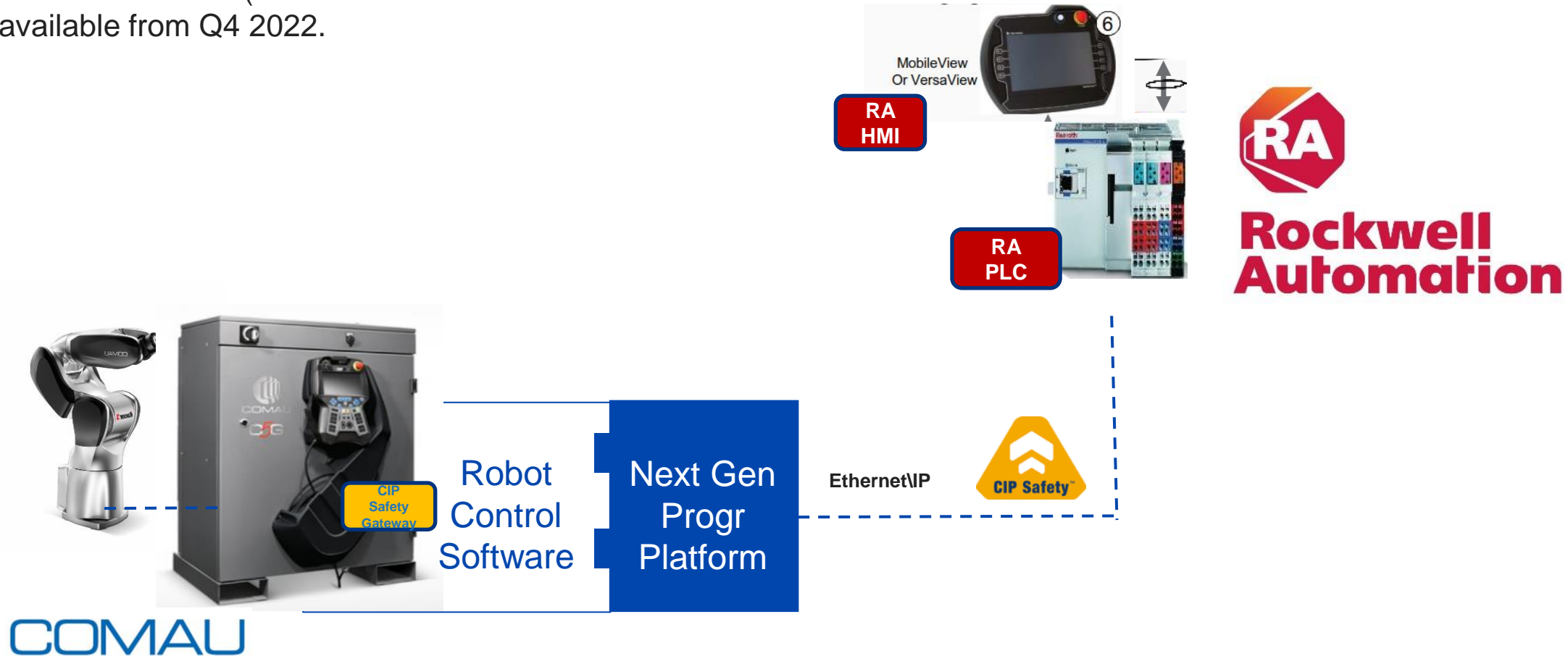


* The specification of SRCI has been developed in a cooperation between Comau, Siemens, ABB Robotics, Epson, FANUC, Kawasaki Robotics, KUKA, Panasonic Industry, STÄUBLI, Techman Robot, Yamaha, and YASKAWA

Comau & Rockwell Automation Architecture for Standard Robot Command Interface (SRCI)



- **Comau and Rockwell Automation** are currently working on developing a common SRCI (Standard Robot Command Interface), available from Q4 2022.





COMAU

Motor behind imagination

A brand of  STELLANTIS