CUSTOMER STORY

An electrifying disruption for the entire racing industry

Integration and IoT puts the connected car on a green racetrack

software AG

Introduction

The Electric Racing Academy (ERA) is the world's first all-electric junior formula racing series. Founded by Beth Georgiou, Rudi Penders, and Dieter Vanswijgenhoven in Belgium, its mission is to transform motorsports by making it more sustainable, equitable, and accessible. ERA's first, single-seater racing series kicked off with events across Europe in 2022 and an inaugural race at the legendary Circuit Zolder.

Technologies:

webMethods.io, Cumulocity IoT, Thin Edge

Challenges:

Improving the racing experience for drivers, engineer teams and fans. Providing real-time data for coaches and drivers. Using technology to lower barriers of entry and promote accessibility. Taking racing green.

Outcomes:

Provided high-frequency, real-time telemetry data on the thin edge. Achieved live data insights at a level only ever realized by F1. Included driver messaging to enrich telemetry, for a continuous flow of performance insights. Immersed race enthusiasts in a thrilling, more data-enhanced experience.

Transforming motorsports with a truly connected vehicle

Electric. Raw. Power. With intelligence.

The Mitsu-Bachi F110e is an electrified beast. An incredibly intelligent, truly-connected, foot-to-the-floor powerhouse.

Bringing ERA's vision to reality meant taking on an ambitious project to generate real-time racing data for drivers, coaches, teams, and fans. It's a vision powered by a fluid flow of data streaming off IoT and other internal and external sources. It's a vision that represents a future where competition isn't about who can afford the most expensive car—but who can master the technology to create a democratized environment open to everyone, fueled by data-sharing, innovation.

The plan was to disrupt an entire industry. But it required a partner, and technology, ready to take on many world's-first challenges. For starters, electric racing requires a new way of thinking about the car. Speed, acceleration, and torque now depend on the battery. And braking is no longer just a way to hit the right speed for the turn—but a multi-dimensional system for generating power, changing race dynamics, and recharging the battery.

A co-pilot worthy of the name

To meet ambition with ambition, ERA combed the market looking for a clear way to gain pole position. With every possible option on the table, ERA chose Software AG and the Cumulocity IoT Platform both in the cloud and on the thin edge.

From vision to technology

With a Cumulocity IoT Thin Edge device installed behind the carbon-fiber driver's seat of the F110e, the sky is the limit when it comes to the data possibilities. The car communicates with the cloud via 4G—a robust link to the Cumulocity IoT Platform—continuously streaming data about speed, acceleration, torque, RPMs, temperature, power from regenerative braking, and a whole lot more.

> "The Electric Racing Academy (ERA) is using data to democratize motorsports. Now we are able to provide racing insights to our drivers and team in real-time, collaborate via a shared IoT platform with eager technophiles and start to innovate around a better fan experience. All this, in turn, attracts a new, diverse generation of driving talent. It's literally a win-win."
>
> – Beth Georgiou, Sporting Director ERA

With a unified hub in place, the sky is the limit. There are many customer journeys planned to launch on the platform. That means seamless apps, instead of chaos, and operational costs that would make any CFO a hero.

That's how Digital Dubai has helped make Dubai the best place to live. And now, the best place to invest or start a new business anywhere in the world. With exciting plans built around data-first, blockchain, and AI, and a laser focus on cleantech initiatives like going paperless, the world capital of ambition is open for business. And full of smiles.

Super connectivity with the Super iPaaS

Racing into the new era of Super iPaaS

To connect the F110e, and enable a democratized, green future for racing, ERA chose a new type of integration platform: Super iPaaS.

Software AG's Super iPaaS is the only platform on the market that can integrate anything, anywhere, any way you want. Unlike a traditional iPaaS, a Super iPaaS integrates ERA's entire enterprise.

Powered by webMethods.io and StreamSets, the Super iPaaS gives ERA access to a single pane of glass solution for APIs, Applications, Events, Data, and B2B—multi-cloud, accessible by IT and business users alike, with unlimited reach, and unified oversight.

Car-to-Cloud Integration

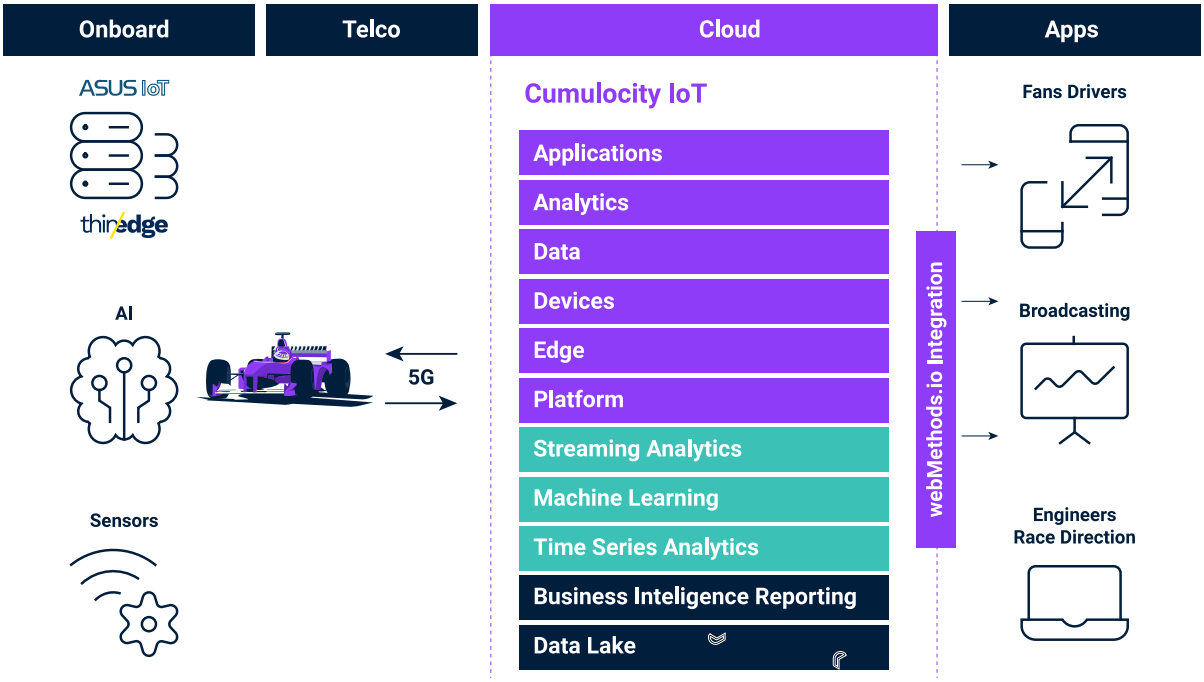
ERA's solution literally integrates everything from car to cloud. Onboard, an embedded Asus PV100A in-vehicle edge gateway touches all systems from the driver interface, to cameras, to sensors that measure torque to temperature and beyond.

A 3D-interactive display brings in the on-board data and integrates it with live weather information from OpenWeather, and live track data and coaching suggestions powered by AI through the ChatGPT API. Knowing the world from windspeed to humidity, the contours of the track, and how the F110e is performing—lets fans have a new way of experiencing the race, coaches and drivers can make smarter decisions, and the car's systems align with driver input to safely accelerate through the next curve. And every curve after that.

For fans that new experience includes deeper access to everything from pitwalks, to a view of the driver experience, to AI feedback on driver performance. For organizers, a Square Space web shop means agile merchandizing and sales, and a driver booking system means better allocation of people and resources. For drivers, generative AI provides a new level of racing insight, and new flexibility to make critical decisions as weather, car, and competitor data changes by the millisecond.

AI-enabled, real-time driver and fan experience

For ERA drivers to make the best decisions, they need access to the best information. Much of this starts with deep insights pulled from the car's CAN bus—a system that allows a car's electronic units and devices to communicate—collected by an edge controller running on Cumulocity IoT Thin Edge. Data gets sent to the Cumulocity IoT Platform in real-time, so drivers can make better decisions based on everything from motor heat to predicted track humidity—without having to correlate complex patterns on their own since the system does the heavy lifting with the help of machine learning and AI



Things get even more interesting by building a digital twin of the car and correlating its data with external sources. For example, driver lap times can be analyzed against numerous factors, including weather, or tire wear, and then run through the webMethods ChatGPT connector to enable AI-driver coaching.

Fans win, too, thanks to AI-enablement. Imagine a virtual, 3D-environment, where you can sit in the car and experience a race, or virtual access to the pit so you can feel the heat of the moment at the center of all the action. This is Dieter's vision and with the help of the Super iPaaS it's not far from becoming a reality. ERA will provide the first truly immersive fan experience in racing—a revolution to the one-way passivity of television.

And when fans want to know more about the track, driver, car, or anything else—they just have to ask. Through the integration of the ChatGPT API, this is now available to answer any complex questions fans have in natural human language. .

> "This is monumental. Previously, in most motorsport classes, data could only be accessed after the race was over. Only Formula 1-class racing has been up to transmitting data in real time—and this comes at a phenomenal expense."
>
> – Dieter Vanswijgenhoven, ERA's Co-Founder, Business & Technical Director

Painting the racetrack green with IoT

The impact of Cumulocity IoT goes far beyond any single race or car. Unleashed, live data is attracting startups, and inspiring innovation to turn all aspects of the racetrack green.

ERA will ultimately enable a testing environment for sustainable initiatives like recycled part prototyping and a plastic-free paddock. The ecosystem that grows around a green racetrack will go even further, including scholarships to include young and more diverse drivers, and innovations for adaptive EVs (Electric Vehicles) to suit a full range of bodies and needs.

Data integrated everywhere means organizers can implement requirements related to minimizing tire and brake usage for instance—limiting particle release, and directly saving energy—powering cars using sustainable sources, and potentially helping shape consumer EV industry building and operating standards.

Thanks to ERA's leading role, the use of streaming data will continue racing's long history of helping transition safety and health innovations from closed tracks to the open roads we all depend on for day-to-day life. The same intelligence that helps ERA cars save energy without sacrificing performance today may power your own EV tomorrow.

> We can innovate overnight if we want to. We have all the parameters in place."
>
> – Beth Georgiou, Sporting Director ERA

Multi-cloud, multi-vender flexibility

ERA chose Cumulocity IoT in part because of its truly multi-cloud, vendor agnostic approach. Using Cumulocity IoT hosted on AWS gave ERA the keys to start building apps that combine short-term operational data from Cumulocity with long-term data from an AWS data lake.

And since the IoT platform is multi-cloud, like the Super iPaaS itself, ERA retains the flexibility to work with any vendor, anywhere, at any time. So, while Cumulocity IoT enables apps built around data in AWS or anywhere else, ERA can also work with Square Space for merchandizing the fan experience and deeper B2B integration.

But this is just the beginning. As new cloud-based services, apps, and APIs emerge, ERA knows it won't be held back or locked in. It can pivot to systems that work best for its drivers, coaches, and fans as their particular needs and desires change over time.

For instance, when ERA wanted to implement live video feeds for coaches and fans it was able to integrate GoPro® cameras with its cloud-based system—up, running, and viewable—in less than a day.

As we are both the developers and builders of the cars, and also run the championship the cars drive in, means we can outpace anyone with integrating transformative technologies. No political hoops or technical restraints to being the most technologically advance racing series out there. For this you need partners that are able to keep pace, and this is why we work with Software AG!

INFOGRAPHIC

iPaaS-ing the competition on the racetrack with integration

The ERA Racing Championship is disrupting an entire industry and transforming motorsports by integrating everything. Explore their innovative approach to integration in this interactive infographic.

View infographic

Driving Change

ERA is changing motorsports forever. It's IoT platform, with deep Super iPaaS integration, is the digital backbone attracting start-ups that aren't just transforming the cars—but the services in and around the entire racing industry.

It starts with the unrestrained thrill that only electric racing can provide: instant, full-throttle torque off the line. It continues with a fully connected experience, powered by AI-enablement, streaming data, and awesome live analysis. It changes the world thanks to a thriving ecosystem pushing the boundaries of sustainability so that everyone can truly embrace the experience.

This is the new ERA in motorsports.

Schedule a demo with a solutions expert

See how you can accelerate outcomes by building a data foundation with Software AG products. Schedule a demo with one of our experts today.

Schedule demo >

Try Software AG solutions for free

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All of our webinars are available to watch on demand. Join digital transformation experts and analysts as they discuss, elaborate and demonstrate best practices.

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