Celona for Robotics OEMs

Give any robot or edge AI device intelligent, multi-network wireless — without building a wireless team.

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/ THE PROBLEM

Wireless is the invisible obstacle

A new generation of physical AI is being built — robots that do the work of humans, cameras that see what humans can't, edge devices that run inference the instant a sensor fires. But every one of them only works with reliable wireless: to talk to other agents, to heartbeat for safe operation, to pull the latest model, and to do dozens of other critical jobs.

Instead, the customer calls to say the robot stops every few minutes when a handover fails — or that the cost of laying fiber has killed the business case for machine vision, because it is cheaper to hire a human. That is the invisible obstacle to the customer's experience, and to the builder's business: a lack of quality wireless.

Suddenly the team is buried in wireless jargon from every vendor — proprietary Wi-Fi, private 5G, a slice from the mobile operator. What should they use, and how do they build the expertise to run it? The device needs **wireless intelligence built in, not a wireless R&D team**.

Single-network wireless — the challenges

- Robots and edge AI devices stall when a wireless handover fails mid-task.
- Fiber and fixed cabling are too costly to reach every place a device must work.
- Every vendor pushes a different proprietary answer, and the jargon buries the team.
- Adding cellular or private 5G means a wireless R&D program the builder doesn't have.
- When a device won't connect, the builder is blind to why — and owns the support call.

/ DESIGN PRINCIPLES

What intelligent device connectivity demands

01

The intelligence has to live in the device

A physical AI device moves through environments it does not control — a customer's site, indoors and out, one venue to the next. The intelligence to see how connectivity is performing and to act on it therefore has to travel with the device, running on its own operating system and aware of each application flow, rather than assuming the single network it happened to be tuned for.

02

Stay neutral across every access technology

Wi-Fi, Ethernet, public cellular, and private 5G each win in different places, and customers increasingly demand more than one. A device locked to a single radio forecloses deployments and strands the buyer the moment the environment changes. An adequate design treats the connections beneath it as interchangeable paths and picks the best one for each flow.

03

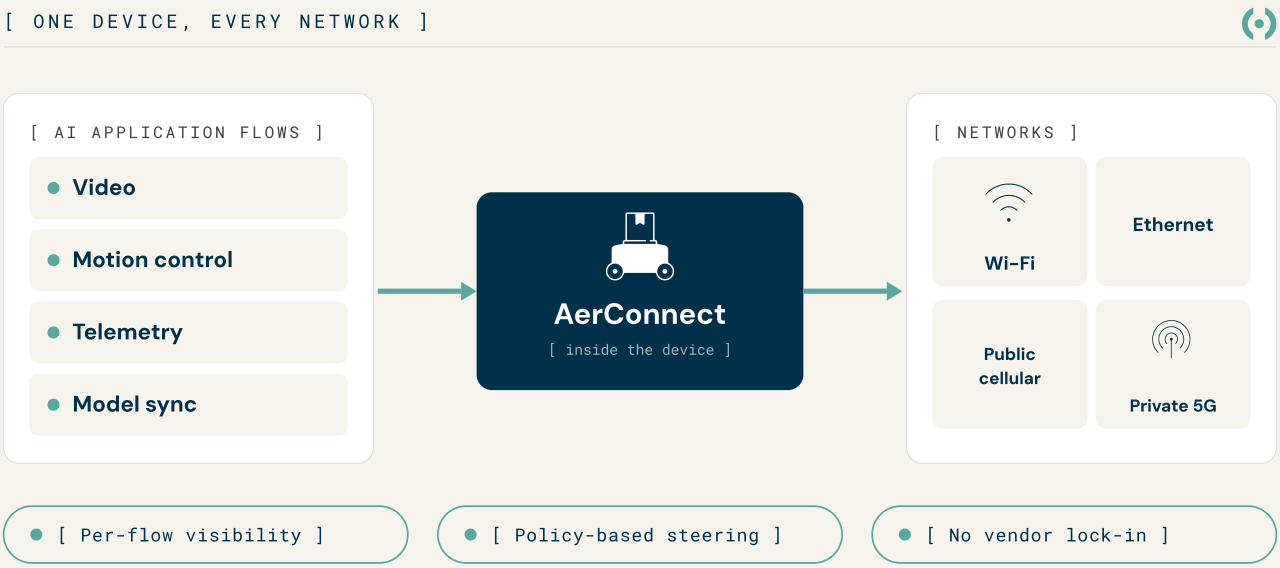
Add a new radio without re-architecture

Devices already in the field and devices still on the drawing board both need to gain cellular or private 5G — without a wireless R&D program and without a redesign. That means the capability has to drop in as software plus certified hardware, retrofitting the installed base and building into new products from the same layer, so meeting a customer's need never waits on an engineering rebuild.

/ THE SOLUTION

Everything you need to add intelligent wireless

Celona gives robotics and edge AI builders everything needed to add intelligent wireless — without a wireless R&D team. At its core is AerConnect, an open-source software agent that runs on the device and works with any wireless infrastructure: Wi-Fi, Ethernet, public cellular, and private 5G. Around it sit pre-certified cellular modules and gateways to add cellular to any device, and a getting-started lab kit with developer documentation — so a builder goes from evaluation to production fast.



Celona AerConnect · the software layer inside the device maps each AI application flow — video, motion control, telemetry, model sync — onto the best available network: Wi-Fi, Ethernet, public cellular, or private 5G.

Open by design, backed by Celona

AerConnect is open source and vendor- and technology-agnostic, so builders adopt it with no lock-in and keep control of their roadmap. It is backed by Celona — the company behind Celona Orion, the industry's first agentic converged wireless platform — and a program of certified hardware partners such as Digi and Telit. Run alongside Celona Orion infrastructure it is supercharged: full visibility from both sides, with an agentic mesh that often resolves issues on its own.

/ ARCHITECTURE

How AerConnect steers every flow

AerConnect works through three layers inside the device — visibility, steering, and enforcement — giving every application flow the best network path, on any radio beneath it.

[THREE LAYERS, INSIDE THE DEVICE]

/ 01

Visibility

Sees and identifies every AI application flow, and how each one is performing.

/ 02

Steering

Routes each flow by policy to the best network — neutral across every radio beneath.

/ 03

Enforcement

[APPLIED AT]

Device

Certified gateway

[ANY CONNECTION BENEATH]

- Wi-Fi
- Ethernet
- Public cellular
- Private 5G

AerConnect: visibility identifies each AI application flow, steering routes it by policy to the best network, and enforcement applies on the device or a certified gateway.

Visibility	AerConnect runs as a software connectivity manager inside the device's operating system, where it sees and identifies every AI application flow — video, motion control, telemetry, model sync — and measures how each one is performing in real time. That per-flow visibility turns the number-one customer-experience issue, normally out of the builder's control — the network — into something the device can finally see.
Steering	Using that visibility, AerConnect steers each flow by policy to the right network — sending latency-sensitive motion control and bulk model sync down different paths at the same time. It stays neutral across any connection beneath it — Wi-Fi, Ethernet, public cellular, and private 5G — so the device always gets the best path for every flow, wherever it runs, using every hertz of spectrum efficiently.
Enforcement	Policy is enforced wherever the device needs it — on the device itself, or on a certified gateway beside it. For cellular and private 5G, AerConnect works with certified hardware partners such as Digi and Telit: a design-in module for new products, or a drop-in gateway to retrofit devices already in the field. Either path runs the same AerConnect software, so the capability is added with no re-architecture.

Because the intelligence lives in the device rather than any one network, the same visibility, policy, and steering follow the device across every site and every radio it meets — and the builder gains deep supportability into connectivity without standing up a wireless team.

Benefits

01 **Connectivity that keeps moving** — seamless steering across networks so a device keeps working as it navigates — no mid-task stalls.

02 **No fiber, no fixed-cost trap** — add wireless where cabling can't reach, so the business case for mobile robots and machine vision holds.

03 **One open, neutral layer** — vendor- and technology-agnostic, so the builder skips the proprietary-wireless maze.

04 **Cellular without an R&D team** — add public and private cellular with software plus a certified module or gateway — no re-architecture.

05 **See and support the network** — per-flow visibility turns the builder's number-one blind spot into something it can triage and resolve.

/ CAPABILITIES

Additional AerConnect capabilities

Beyond its visibility, steering, and enforcement layers, AerConnect gives builders a complete way to add intelligent wireless — software, certified hardware, and a way to get started.

Per-flow application awareness

AerConnect identifies every AI application flow on the device — video, motion control, telemetry, and model sync — and treats each on its own terms, so latency-sensitive and bulk traffic never compete on one undifferentiated pipe.

Drop-in gateway for the installed base

For devices already in the field, add a certified gateway — for example from Digi — to retrofit cellular with no re-architecture and no product recall. Same AerConnect software, new capability.

Getting-started lab kit

A pre-packaged lab kit lets a builder's engineers try AerConnect at discounted rates, with easy-to-follow developer documentation and a recommended reference architecture to design against.

Supercharged with Celona Orion

Used with Celona infrastructure, AerConnect gains full visibility from both sides of the connection, and Celona's agentic mesh can often resolve issues automatically, with no manual intervention.

Design-in module for new products

For devices still being designed, build a certified cellular module — for example from Telit — into the product, so public and private cellular ship from day one, with a full integration guide instead of an R&D effort.

Certified hardware partner program

AerConnect works with a program of certified module and gateway makers, so builders choose proven hardware and add it with confidence rather than validating cellular radios themselves.

Open source, no lock-in

AerConnect runs on the device's own operating system and stays neutral across every radio beneath it. Open and technology-agnostic, it keeps the builder in control of its roadmap and its stack.

Spectrum-efficient steering

By routing each flow to the best available path, AerConnect uses every hertz of spectrum efficiently — delivering the smoothest experience the environment allows, without over-provisioning any single radio.

/ COMPARE

How AerConnect compares

The real question isn't which network your device runs on — it's whether the device is intelligent about all of them. With AerConnect, it is.

	LEGACY SINGLE-NETWORK WIRELESS	AERCONNECT – INTELLIGENCE IN THE DEVICE
WHERE INTELLIGENCE LIVES	Tuned to one network the device was built for; blind once it moves.	A software layer in the device that sees every application flow in real time.
ACCESS TECHNOLOGY	Locked to a single radio — Wi-Fi, or nothing.	Neutral across Wi-Fi, Ethernet, public cellular, and private 5G.
PATH SELECTION	One fixed path for all traffic, best-effort.	Best path chosen per flow, by policy, in real time.
ADDING CELLULAR	A wireless R&D program and a device redesign.	Software plus a certified design-in module or drop-in gateway.
SUPPORTABILITY	The builder is blind when a device won't connect.	Per-flow visibility to triage and resolve, on device or gateway.

/ USE CASES

Technology use cases

AerConnect fits anything that moves, sees, or decides on wireless — across the environments physical AI is moving into.

Robot OEMs — ship AMRs and humanoids on a customer's private 5G with no cellular stack to build. · MANUFACTURING

Edge AI compute — reliable coverage for inference devices in remote and industrial locations.

Machine vision — add wireless where fiber can't reach, keeping the business case intact.

Forklift computers — keep vehicle-mounted computers connected and steerable as they move the site. · WAREHOUSING AND LOGISTICS

Inventory drones — steer scan video, flight control, and telemetry each to the right path as they fly the aisles.

/ THE PAYOFF

Intelligent wireless, any device

AerConnect represents a shift for the builders of physical AI: the wireless intelligence a device needs no longer has to be built in-house or locked to one network. By seeing every application flow, steering each to the best path, and enforcing policy on the device or a certified gateway, AerConnect lets any robot or edge AI device connect reliably across Wi-Fi, Ethernet, public cellular, and private 5G — with no wireless R&D team, no re-architecture, and no vendor lock-in. And run alongside Celona Orion, it is supercharged: full visibility from both sides, and an agentic mesh that can resolve issues on its own.

The real question isn't which network your device runs on — it's whether the device is intelligent about all of them. With AerConnect, it is — so the device you ship connects from day one, wherever your customer runs it.

/ REFERENCES

01 Celona AerConnect — product overview

02 Celona Orion — the agentic converged wireless platform

03 Celona product documentation

/ ABOUT CELONA

Celona is the company behind Celona Orion, the industry's first Agentic Converged Wireless Platform. Enterprises in manufacturing, logistics, mining, energy, and healthcare use Celona to connect the machines, sensors, autonomous systems, and people running their physical operations — with the deterministic performance, security, and enterprise control that off-the-shelf wireless can't deliver. For more information visit celona.io.

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