
Celona AerFlex

Cellular-grade wireless with the footprint of Wi-Fi — control in the cloud, data on site, and nothing to deploy but the access point.

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The deployment model hasn't kept up

AI is moving into physical operations everywhere the enterprise runs them — not just the flagship plant, but the storefront, the depot, the rig, the remote production line. Machines, sensors, cameras, and autonomous systems at every one of those sites now depend on wireless that behaves deterministically. Yet the architecture that delivers that behavior was designed for a different era: on-site servers, racks, custom cabling, and specialized skills at every location.

That model breaks exactly where the need is growing fastest. Distributed enterprises measure their estate in hundreds or thousands of sites, most of them small, space-constrained, or without IT staff on the ground. For them, per-site infrastructure turns every rollout into a program of projects — weeks of staged deployment, duplicated overhead, and skills the site doesn't have. The shortcut of pushing everything to the cloud fails differently: operational traffic gets backhauled, and latency, resilience, and data control pay the price.

As enterprises design the next generation of wireless, they have the chance to redesign rather than patch: **move control to the cloud, keep data on site, and make the access point the entire on-site footprint.**

Infrastructure-heavy wireless — the challenges

- An infrastructure build at every site — space, power, staging — before devices connect.
- Deployments take weeks and demand telecom skills most sites don't have.
- Small, remote, and space-constrained sites can't justify on-site infrastructure.
- Cloud-only alternatives backhaul operational traffic — latency and data control suffer.
- Per-site builds multiply cost and effort, so distributed rollouts never finish.

Key considerations for cloud-delivered wireless

01 Deploying a site can't mean deploying a project

A distributed enterprise measures rollouts in sites per week, not weeks per site. Bringing a location onto the network must not depend on local specialists, infrastructure builds, or per-site engineering. Provisioning has to be zero-touch — hardware ships, connects, and configures itself — so the five-hundredth site takes the same effort as the first and rollouts scale like the business.

02 Control belongs in the cloud; data belongs on site

Centralizing everything in the cloud is as wrong as building everything on site. Signaling, configuration, and mobility logic can run centrally and scale elastically — but operational traffic is latency-sensitive and often regulated, so it must break out locally and never leave the site. An adequate architecture splits the two deliberately: cloud control for scale, a local data path for performance and compliance.

03 Land in the network the enterprise already runs

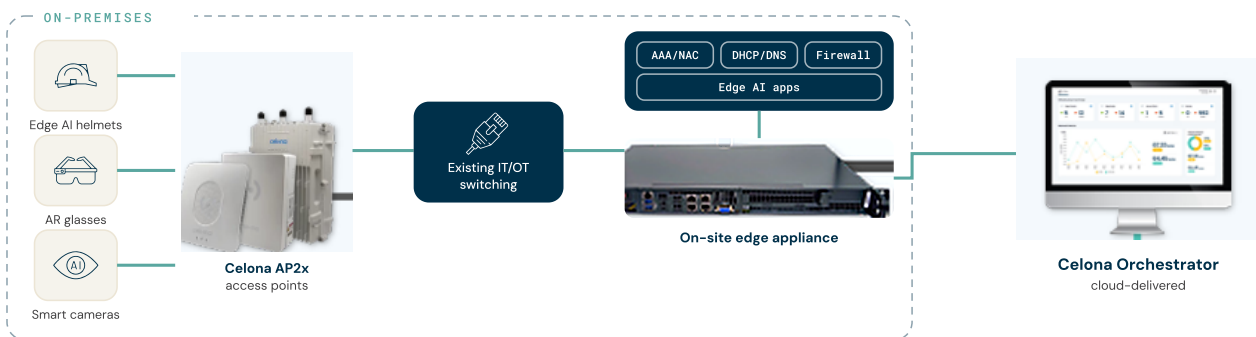
New wireless can't arrive as a parallel network with its own tooling and skill set. It has to draw power and connectivity from existing switching, respect existing firewalls and identity and security policy, and be operated by the networking team the enterprise already has. Anything less turns every site into an integration project and every change into risk.



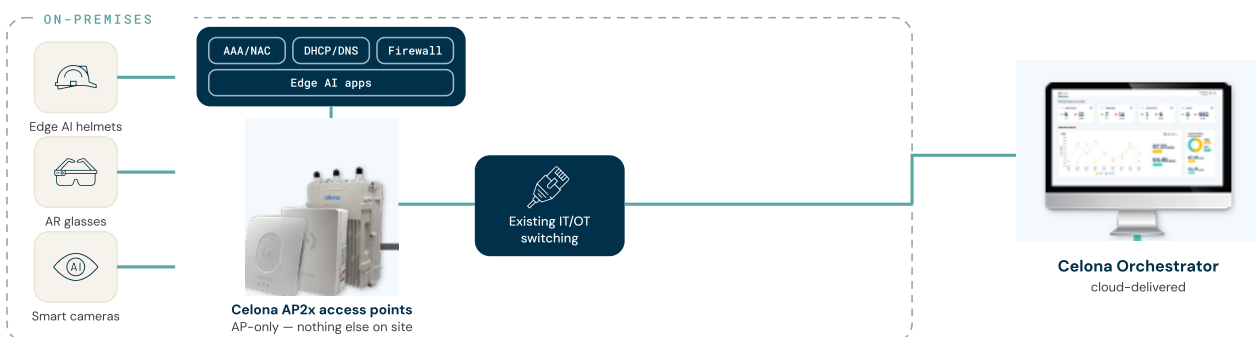
Introducing Celona AerFlex

AerFlex is the cloud-delivered deployment architecture of Celona Orion, the converged wireless platform. It is the industry's first truly cloud-controlled, AP-only private 5G architecture: the access point is all the hardware a site hosts, control functions run in the Celona cloud, and data breaks out locally. Sites that could never carry a network build of their own — stores, depots, rigs, remote plants — join the same fabric as the flagship campus, in hours.

Classic deployment — APs + on-site edge



AerFlex — AP-only, cloud-controlled



Celona Orion · AerFlex — the classic APs-plus-on-site-edge deployment beside the AerFlex AP-only model: the same edge functions, existing IT/OT switching, and Celona Orchestrator, with nothing on site but the access point.

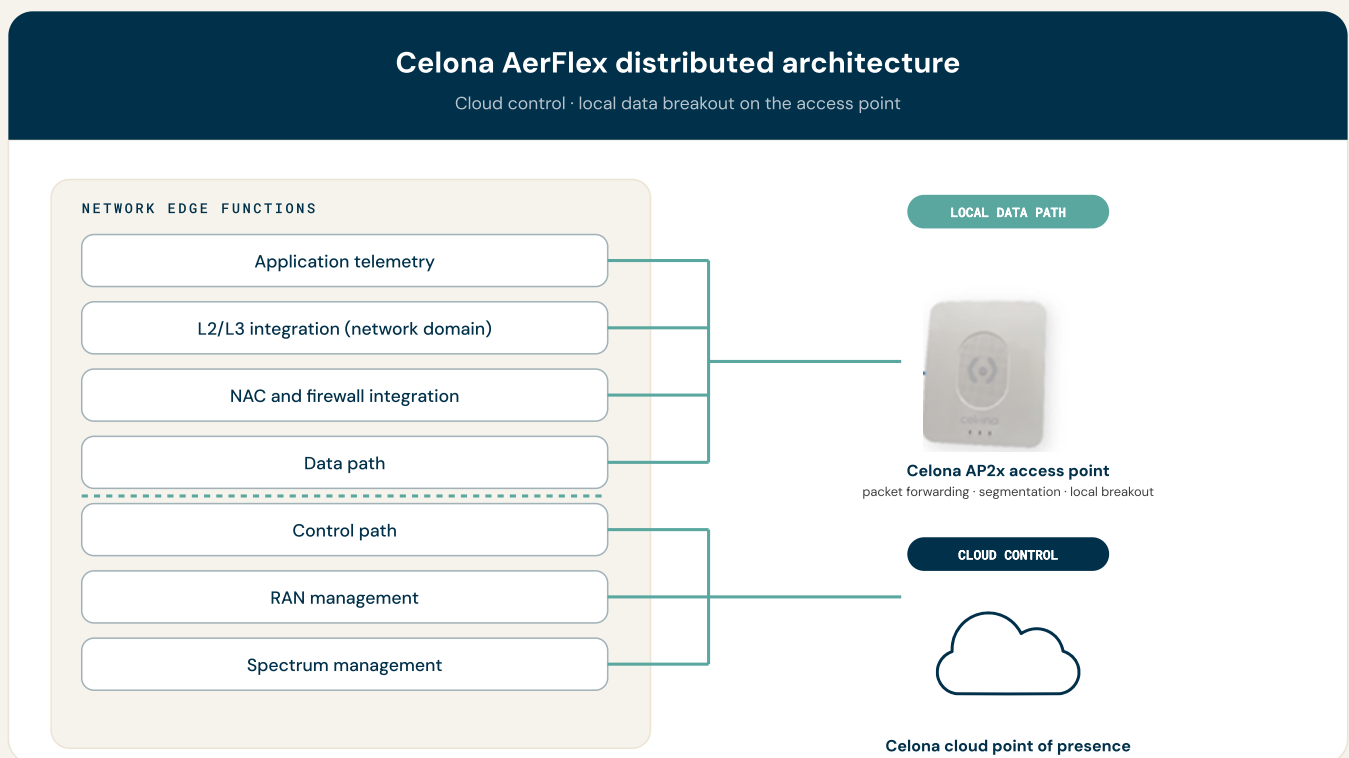


The same trusted stack at every site

A smaller footprint doesn't mean a lighter trust model. AerFlex inherits the platform it deploys: Celona

How AerFlex delivers the fabric from the cloud

AerFlex delivers the fabric through three layers — the access point on site, Celona cloud control, and Celona Orchestrator — keeping the data path local while everything else runs, and scales, in the cloud.



AerFlex distributed architecture: application telemetry, L2/L3 integration, NAC and firewall integration, and the data path run on the access point; the control path, RAN management, and spectrum management run in the Celona cloud point of presence.

The access point — the local data path

A Celona AP2x-series access point is everything AerFlex places on site. Powered over PoE and connected to the existing LAN, it hosts the local data path — packet forwarding, segmentation, and policy enforcement — with secure local traffic breakout into the site's own switches and firewalls. Latency-sensitive traffic from robotics, video AI, and automation never leaves the site.

Cloud control — network functions as a service

The functions that classically demanded on-site infrastructure — authentication, RAN control, mobility management, spectrum coordination, and configuration logic — run as cloud instances in the nearest Celona point of presence, scaling dynamically with the deployment. Control signaling rides an encrypted tunnel to the cloud; user data never follows it.

Celona Orchestrator — the agentic operations plane

Orchestrator manages every AerFlex site from one place: zero-touch provisioning that brings a new location live in hours, then configuration, policy, upgrades, and full network visibility across thousands of distributed sites. As the platform's agentic operations plane, it exposes the network's capabilities over open, standards-based interfaces — so wireless teams, and the agents they compose, operate the whole estate as one system.

Because control lives in the cloud and data stays on site, the same fabric reaches the sites that on-site infrastructure priced out — and every one of them lands under the same Orchestrator, the same policy, and the same network the enterprise already runs.

Benefits

- 01 **Live in hours, not weeks** — the site provisions itself and joins the fabric — no local IT on the ground.
- 02 **Nothing on site but the AP** — no racks, servers, or custom cabling — a footprint as simple as Wi-Fi.
- 03 **Local data, cloud control** — latency-sensitive traffic breaks out on site; performance and data control hold.
- 04 **Built for distributed scale** — one agentic operations plane runs every site, from the first to the thousandth.
- 05 **Fits the network you run** — plugs into existing switching, firewalls, and identity and security policy.



Additional AerFlex capabilities

Beyond the split architecture itself, AerFlex carries the operational and security depth of Celona Orion to every site it reaches.

Zero-touch provisioning

Ship the access point straight to site: it powers over PoE, reaches its cloud control, and provisions on first boot — no staging visit, no specialist, no return trip.

Control that never needs sizing

Control capacity is pooled in the Celona cloud and scales with the estate, so nobody sizes, procures, or refreshes control infrastructure for any individual site.

Enterprise LAN integration

Access points integrate at L2/L3 with existing switching, VLANs, and firewall zones, so wireless lands inside the network — and the policy — the enterprise already runs.

Simple per-AP subscription

AerFlex is priced as a consistent add-on per access point, on 3- or 5-year terms — and existing Celona deployments can upgrade seamlessly.

Data sovereignty by default

User traffic never transits the Celona cloud — it breaks out at the access point into the site's own network, so regulated and sensitive operational data stays on premises.

Three edge modes, one platform

AerFlex joins the appliance and virtualized edge modes of Celona Orion. Enterprises pick the right mode per site — high-mobility plants on an on-site edge, distributed sites on AerFlex — and run them all as one network.

Security architected in

Every device authenticates with SIM-based identity, and segmentation and policy enforcement run in the access point's local data path — the platform's security model, at every site.

How AerFlex compares

The real question isn't whether a site is big enough for the network — it's whether the network is simple enough for the site. With AerFlex, it is.

INFRASTRUCTURE-HEAVY PRIVATE CELLULAR		AERFLEX – THE FABRIC FROM THE CLOUD
ON-SITE FOOTPRINT	Racks, servers, and custom cabling at every site before the first device connects.	An access point on PoE — nothing else on site.
TIME TO LIVE	Weeks of staged deployment and specialist time per site.	Hours — the access point provisions itself from the cloud.
DATA PATH	Trapped on site with the hardware, or backhauled to the cloud at latency's expense.	Local breakout at the access point; only control rides to the cloud.
SCALE	Cost and complexity grow linearly with every location added.	One operations plane, any number of sites — growth without new overhead.
EXPERTISE	Telecom skills required at deployment and at every change after.	Operated by the enterprise networking team through Celona Orchestrator.

Technology use cases

AerFlex carries the fabric wherever the enterprise operates — whatever the site's size, staffing, or setting.

Retail chains and branch offices — consistent connectivity across hundreds of storefronts.

· RETAIL

Warehouses and distribution centers — resilient wireless for material handling and robotics.

· DISTRIBUTION AND LOGISTICS

Remote energy sites — sensors, cameras, and control systems with zero IT footprint.

· OIL AND GAS

Food and beverage manufacturing — autonomous lines with secure, local data breakout.

· MANUFACTURING

Yards and outdoor operations — AI-powered dispatch, logistics, and automation in the open.



The whole platform, from one access point

AerFlex removes the last reason a site stays off the fabric. By moving the network's machinery into the cloud and leaving only an access point behind, Celona extends the converged wireless enterprises run in their largest plants to every site they operate — however small, however remote — with the platform's identity, segmentation, and trusted stack traveling along intact.

The real question isn't whether a site is big enough for the network — it's whether the network is simple enough for the site. With AerFlex, it is — one access point on site, everything else delivered from the cloud, at every location the enterprise runs.

/ REFERENCES

01 [Celona AerFlex](#)

02 [Celona 4G/5G access points](#)

03 [AerFlex launch announcement](#)

/ 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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VERSION 2.0 · AUGUST 2026 · 10