celona

Solution Brief



Challenges with In-building public cellular coverage

Indoor cellular coverage is a challenge that has long been an issue for IT departments that manage offices, buildings, campuses, warehouses, and manufacturing plants.

In some cases, public Mobile Network Operator (MNO) signal is non-existent. In others, wireless signal from MNO tower cannot penetrate sufficiently to inside the buildings due to modern building materials such as the use of low-emissivity (Low-E) glass.

Traditionally several public carrier signal extension methods exist including signal boosters and Wi-Fi calling, but the most popular option is to deploy a distributed antenna system (DAS). The architectural philosophy behind DAS is that it amplifies cellular carrier signals over dedicated cabling infrastructure that is run throughout a given site.

DAS solutions are overly complex, require dedicated wiring and take months if not years to deploy.

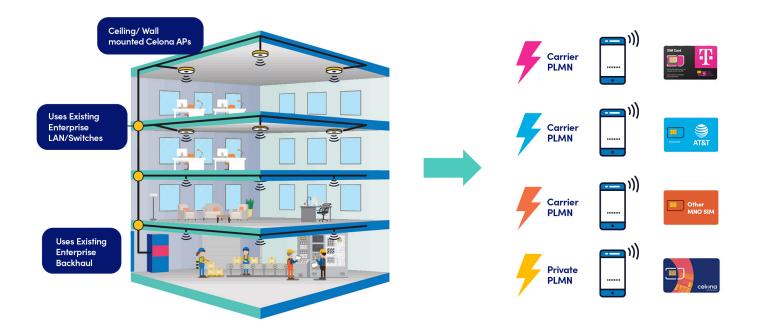
High quality in-building coverage with Celona Neutral Host

Celona's Neutral Host redefines the benchmarks for enterprise in-building cellular coverage by bringing mobile network operator signal into the heart of businesses and remote locations. Enterprises can now setup a Celona Neutral Host network in their premises to allow devices with T-Mobile and AT&T (and other MNOs in the future) to connect to the mobile operator networks via the enterprise LAN network and get 5-bars of signal.

Using the Celona Neutral Host architecture, devices with SIMs/eSIMs from T-Mobile and AT&T can automatically detect, authenticate and connect to Celona Access Points (APs) over private cellular spectrum such as CBRS (3550 to 3700 MHz). The data and voice session get seamlessly routed to the MNO network via a secure tunnel using Celona's cloud-based Multi Operator Exchange (MOXN).

The Access Points tie into existing switches and routers on the Enterprise LAN instead of dedicated fiber/coax cabling in addition to providing carrier cellular service, the same equipment can also be used to setup a private cellular network for mission critical use cases with an add-on subscription. Furthermore, instead of each MNO bringing their own backhaul to the enterprise, the Celona Neutral Host networks use existing backhaul by the enterprise via its ISP.





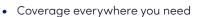
Key value of Celona Neutral Host





- Requires no manual connection step
- Secure cellular connectivity replaces un-secured open guest Wi-Fi networks
- Works with all major smartphones and tablets
- e911 and Wireless Emergency Alert (WEA)

For Enterprises



- Deploy in weeks not years
- Use existing network infrastructure
- Add up to 5 operators in the future without additional hardware
- Frees up Wi-Fi network capacity from guest usage
- Use same CBRS network for private use cases

Celona Neutral Host vs Carrier DAS

Celona Neutral Host offers a much simpler, scalable solution to address in-building public cellular coverage accelerating time to value in comparison to traditional Carrier DAS.

Traditional Carrier DAS Celona Neutral Host Solutions High implementation costs 40% - 60% lower TCO Lengthy and complex deployments Operational in weeks not months or years Capacity constrained by single cell Scale capacity with additional small cells Requires dedicated fiber/coax cabling Uses existing LAN infrastructure Use of CBRS spectrum simplifies RF design Complex RF design due to licensed spectrum by eliminating manual co-ordination Single use network Multi-purpose solution – Public and Private



Use cases

Celona's Neutral Host service can enable property owners to enhance customer and staff experience by providing five bar carrier coverage inside a property with poor cellular service.

Property owners have the option to also enable a highly reliable private cellular network for business-critical use cases such as security cameras, connected staff, IoT sensors, robotics using the same infrastructure.



Healthcare

Indoor carrier coverage for:

- Hospital lobby, waiting/consultation rooms, public spaces
- BYOD for doctors, medical and operational staff

Private wireless use cases

- Connected staff, clinician voice comms.
- Security cameras, IoT sensors, robotics



Commercial Office Space

Indoor carrier coverage for:

- Lobby, offices, conference rooms, common spaces
- BYOD for tenants, guests, and operational staff

Private wireless use cases

 Security cameras, connected staff, IoT



Retail

Indoor carrier coverage for:

- Customer service/experience, POS areas
- Multi channel customer buying experience.
- BYOD connectivity for employees

Private wireless use cases

• Security cameras, AGVs, robotics etc.



Universities

Indoor carrier coverage for:

- Dorms, libraries, classrooms
- BYOD for students, operating staff, security

Private wireless use cases

 Security cameras, connected staff, IoT sensors



Hospitality

Indoor carrier coverage for:

- Lobby, guest rooms, conference rooms, pool areas
- BYOD for guests and operational staff

Private wireless use cases

· Security cameras, connected



Celona Neutral Host solution includes everything you need

3 or 5 year per AP Neutral Host subscription includes

- Access Points (Neutral Host currently supporting 4G indoor only configurations)
 - AP 12 Indoor 4G Access Point
 - or AP 20 Indoor 4G/5G Multimode Access Point for future proofing
- Celona Edge software
- **Celona Orchestrator**
- Celona MOXN for multiple operators
- Neutral Host as a managed service*, including
 - Managing the intake process and design approval with operator (T-Mobile & AT&T)
 - Operating the service, proactively monitoring and reporting KPIs to MNO
 - Managing network performance and experience as per MNO SLA requirements
- **Support and Warranty**
- Option to add-on Private 4G network subscription at any time (same hardware) at additional price















