



In-Building Wireless for Healthcare

Celona 5G LAN provides secure, and scalable public and private cellular connectivity for healthcare facilities

celona

SOLUTION BRIEF

Introduction:

Communication inside healthcare facilities like hospitals, doctor offices, senior care, and nursing facilities has long been a challenge. While physicians, staff and patients bring their own personal mobile devices, cellular coverage inside these buildings has been an issue due to factors such as modern construction materials and interference from medical equipment and metal racks. Lack of reliable cellular coverage inside the building often results in compromised operations and poor staff communication and can have an impact on the patient/visitor experience.

Healthcare IT teams have little control over public cellular coverage inside the facility, and managed Wi-Fi networks and distributed antenna systems (DAS) fall short in providing a robust, scalable solution to meet wireless connectivity needs.

Celona 5G LAN offers healthcare facilities a private 4G/5G solution, that not only enables connectivity for healthcare operations, but also provides 5-bar public cellular coverage in hard-to-reach places throughout the medical center, both indoors and out.

Why is reliable wireless connectivity critical for healthcare facilities?

Connections at challenging indoor/outdoor healthcare locations



1. Staff Communications



2. Patient / Visitor Experience



3. Secure IoT and Data



4. Extended Use Cases

Why is reliable wireless connectivity critical for healthcare facilities?

1. Improving physician and staff communications

- Deliver reliable voice and data communications for physicians and staff on their personal smartphones
- Prioritize physicians devices or specific data traffic (e.g. Zoom calls) on the network
- High quality of service for clinical communication and collaboration platforms such as Voalte, Vocera
- Enable remote patient monitoring and telehealth systems
- Access Electronic Health Records (EHR) on mobile devices.

2. Improving patient/visitor experience

- Enable hospital staff to reliably communicate with patients and visitors inside the facility
- Provide patients with reliable cellular connectivity in lobbies, waiting rooms and patient rooms
- Support e911 and wireless emergency alerts (WEA) on mobile phones regardless of Mobile Network Operator (MNO).

3. Secure IoT and Data

- Support video surveillance and access control for remote campus locations without running expensive cabling
- Setup granular QoS and security policies to connect medical equipment to the hospital network wirelessly
- Track asset location anywhere in the facility by deploying wireless sensors.

4. Extended Use Cases

- Setup quarantine areas and pop-up clinics both indoors and out using mobile devices and equipment
- Setup public cellular coverage in hard to access areas in basements, parking lots, outdoor research centers, etc
- Use the private wireless network to setup Wi-Fi hotspots anywhere without additional cabling
- Leverage high-performance wireless connectivity for AR/VR/ robotics equipment.



“ We think we can reduce our costs by nearly 40% over a traditional DAS solution. This is just for the Neutral Host and getting carrier solutions within our facilities. The ability to have additional bandwidth, better latency, additional security, and better control is really exciting ”

Christian Lindmark
CTO, Stanford Health Care

Challenge with existing wireless technologies

Existing wireless technologies have failed to keep up with modern healthcare connectivity need.

Public cellular

- Good coverage depends on factors like distance from the macro cell tower, construction material used in healthcare facilities, and the surrounding landscape and obstructions that can block cell signals.
- Healthcare IT teams lack the ability to manage and control security policies and Quality of Service (QoS) on a public cellular network.
- Service can become cost prohibitive with data usage fees charged for applications like HD video camera streams.

Wi-Fi

- Requires a significantly large number of access points (APs) to fully cover a facility, impacting cost and ease of operations.
- Lacks the ability to provide emergency and e911 calling capabilities.
- Performance deteriorates as the number of devices connecting to the network grows.
- Lacks QoS for mission-critical applications.

Traditional Distributed Antenna System (DAS)

- Cost-prohibitive for most healthcare facility locations.
- Complex deployment and MNO contract negotiations can take months to deploy.
- MNO DAS subsidies are going away for all but the largest deployments (arenas and convention centers).



What is Celona 5G LAN and what are its benefits?

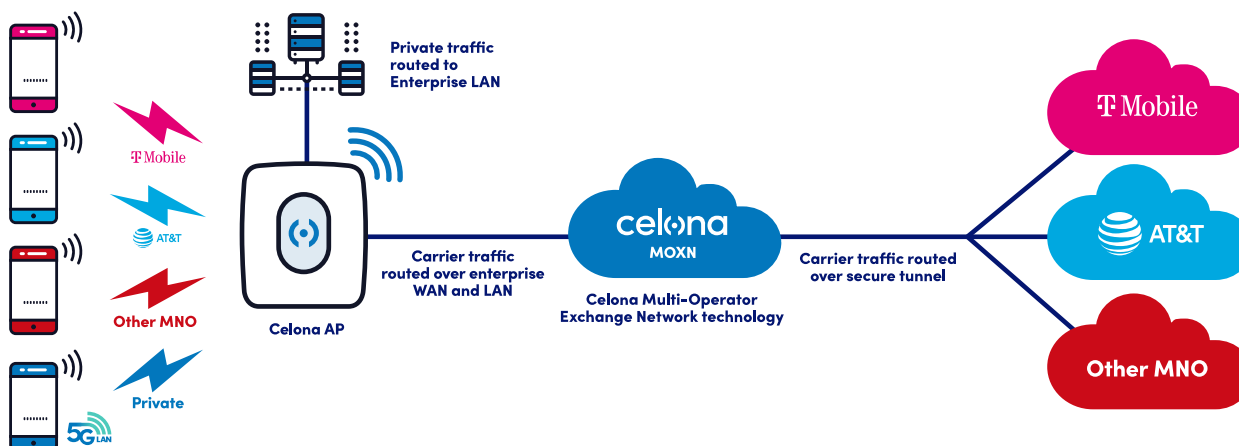
Celona 5G LAN is a private 4G/5G infrastructure that can be deployed at a healthcare campus, even in hard-to-reach areas. The same infrastructure can provide 5-bar public cellular coverage for T-Mobile and AT&T subscribers as well as support private cellular use cases for healthcare facilities operations and business critical applications, including

- Asset and medication tracking
- Connectivity for mobile medical carts and equipment
- HD virtual consultations
- Video-enabled prescription management
- Remote expert consultation and collaboration
- Remote patient monitoring
- Connected ambulance
- AR/VR training and education
- Real-time, high-throughput computational processing
- Video analytics for behavioral recognition.

Key benefits:

- Network is owned and managed by healthcare IT team
- Scale as needed from a single area to facility-wide: indoor, outdoor, parking garages etc.
- Support e911 and wireless emergency alerts (WEA) on mobile phones regardless of Mobile Network Operator (MNO)
- Highly reliable and faster network supporting a large number of simultaneous devices
- 1 private wireless access point can connect up to 1M sq-ft outdoors or 50,000 sq-ft indoors
- Plugs directly into existing enterprise LAN infrastructure and network policies
- Maximum security includes SIM authentication and integration with existing firewalls and Network Access Control systems
- Deploys in just a few weeks at a fraction of the cost of DAS.

Network	5G LAN Public Network	5G LAN Private Network
Description	5 bars of Public Carrier (T-Mobile, AT&T) coverage wherever needed.	High performance coverage for operations, including security and safety, mobile medical carts, asset tracking and more.
Devices/SIM	<ul style="list-style-type: none"> Most MNO-provided smartphones Most MNO SIMs/eSIMs. 	<ul style="list-style-type: none"> Wide range of devices, including phones, tablets, cameras, and IoT sensors Celona Private wireless SIM/eSIM.
Use cases	<ul style="list-style-type: none"> Physician and staff phones Patient and visitor phones Support for e911 calling and emergency services Improve cellular coverage at pop-up clinics, quarantine areas and public spaces. 	<ul style="list-style-type: none"> Security cameras Medical devices OT devices-tablets, smartphones etc Access control Point of sale terminals Autonomous robots VR/AR applications.
Works where- ever coverage is needed	<ul style="list-style-type: none"> Indoor: lobby, waiting room, doctor's office, operating suite, ER, lab, auditorium, cafeteria. Outdoor: parking garages, pop up clinics, outdoor research facilities. 	



Product Documentation

[Solution Brief: In-building public cellular coverage from Celona](#)

[Product Brief: Celona Neutral Host & MOXN™ Architecture](#)

Want to learn more?

[Contact Sales >](#)

celona celona.io

900 E Hamilton Ave Suite 200,
Campbell, CA 95008, United States