celona

5G LAN for Data Centers

Reliable, pervasive wireless network that deploys fast with lower cost and maintenance compared to Wi-Fi

Data centers are being built at an unprecedented pace with global construction growing more than **70% year-over-year**.

As these investments scale, minimizing the time from groundbreaking to operational status is critical. Most new facilities span between 300,000 and 1.5 million square feet indoor space and 1-3 million sq-ft outdoor areas. Speed to value has become a top priority for operators under pressure to meet soaring digital and AI infrastructure demands.

The growing complexity and scale of modern data centers make reliable wireless communication essential. Staff need secure, real-time connectivity to monitor and troubleshoot network and infrastructure issues quickly and stay safe while working across large indoor and outdoor areas.

Wireless Connectivity Use Cases in Data Centers

Staff Communication	Infrastructure Monitoring	Material Handling
• Computer on-wheels • Mobile KVM • Mobile worker tablets and phones • Worker safety equipment • Emergency services connectivity	• Wireless perimeter security • Wireless cameras, access controls • Remote monitoring sensors: Power, HVAC, environmental etc.	• Inventory scanning devices • Dispatch systems • AGVs/AMRs operations • Inventory management

The Connectivity Challenge

Data centers are often built in remote areas where the environment—filled with metal structures—makes wireless signal penetration difficult.

Wi-Fi Challenges	Mobile Network Operator (MNO) Challenges
• Poor Signal penetration and high noise susceptibility/interference • Large number of APs and wiring infrastructure required • Poor mobility and handovers • Unpredictable latency	• Dependence on MNO tower • Data security concerns on public network • DAS implementation complex and expensive • Cost of usage billing

"Public cellular may work for basic applications, but when you start accessing internal systems, the user experience falls apart."

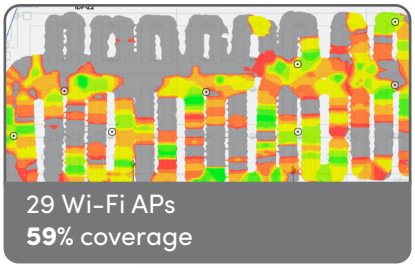
- bp

Real-world performance of Celona Private 5G vs Wi-Fi

Outdoor Coverage

- 1/10th - 1/30th the APs as Wi-Fi
- Seamless mobility
- No trenching/cabling

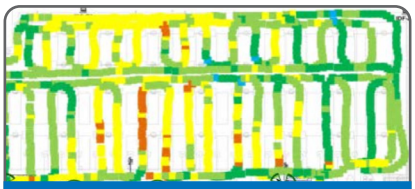
Wi-Fi Heat Map



29 Wi-Fi APs
59% coverage

561K sq-ft

5G LAN Heat Map

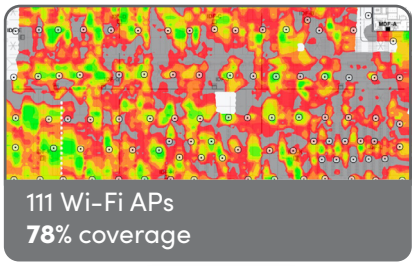


3 Celona 5G LAN APs
95% coverage

Indoor Coverage

- 1/5th the APs as Wi-Fi
- Reliable connectivity inside server farms

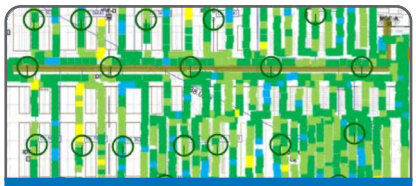
Wi-Fi Heat Map



111 Wi-Fi APs
78% coverage

775K sq-ft

5G LAN Heat Map



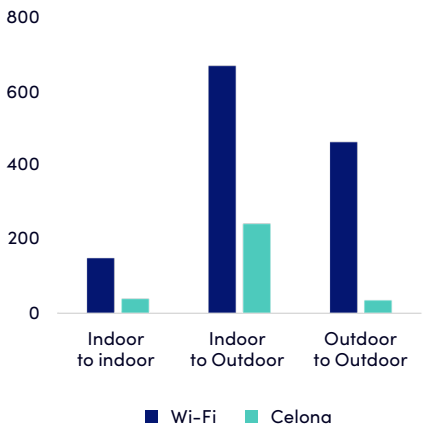
22 Celona 5G LAN APs
99% coverage

Ultra-low Latency

MicroSlicing™ enabled QoS

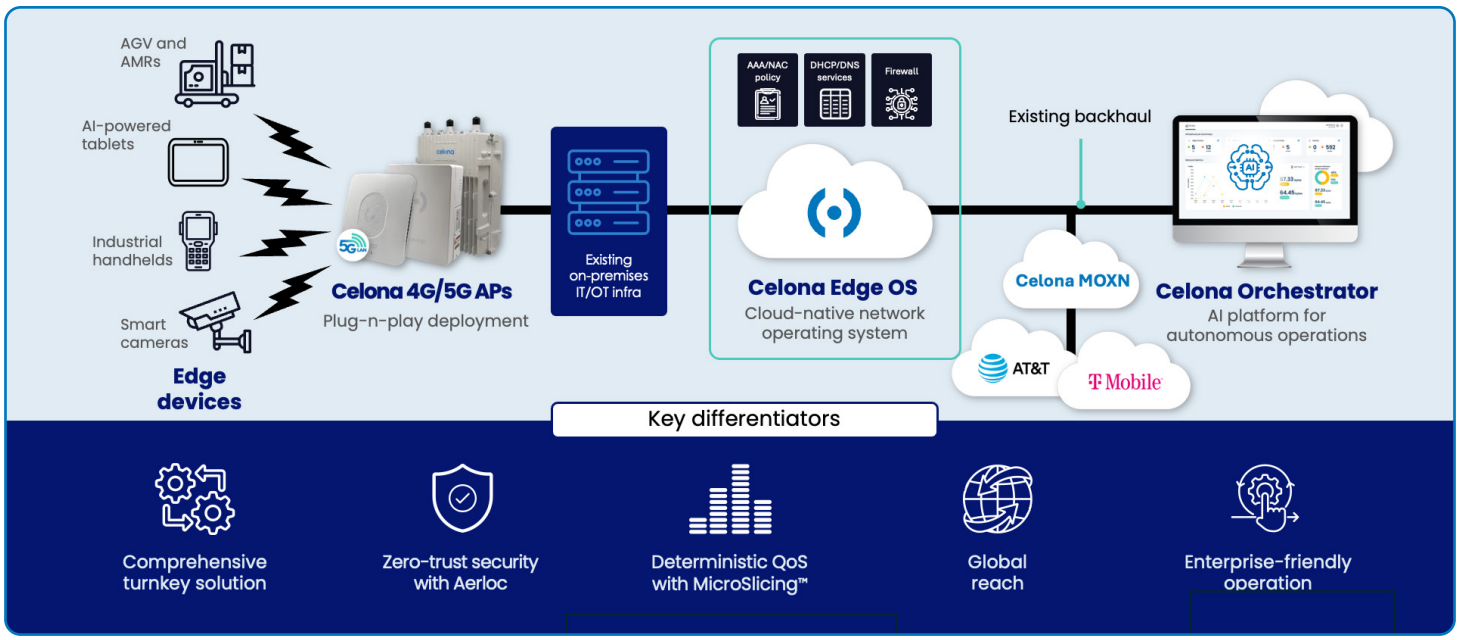
- Latency sensitive sensors, computer on wheels, etc.

Average Ping Response Time (msec)



Celona 5G LAN: Turn-key Enterprise Friendly Private 5G for Data Centers

Celona 5G LAN is a turnkey enterprise-grade Private 5G solution that can be deployed in just days delivering reliable wireless coverage across indoor and outdoor areas across large data centers — including metal-dense environments.



Key Benefits of Celona 5G LAN for Data Center Operations

Better Network than Wi-Fi and MNO

- Exceptional coverage, speed, and seamless low-latency mobility
- Full control of site coverage, capacity than MNO
- Data stays local and tightly integrated into enterprise policies
- High performance in dense high metal, large indoor/outdoor spaces

Lower Maintenance and TCO Than Wi-Fi

- Requires only 1/5th to 1/20th the number of APs compared to Wi-Fi
- Lower cabling and infrastructure costs

Deploys In Just Weeks

- Fewer APs with PoE, POE++, connects directly to enterprise switches
- Celona AerFlex™ enables AP-only, appliance-free installations
- Build once, use twice: Network deployed for construction can evolve into permanent data center infrastructure

Enterprise-grade Security

- Existing security policy integration with Celona Aerloc™ architecture
- Clientless zero-trust implementation with SIM authentication
- Seamless integration with 3rd party NAC and security systems
- Enables granular traffic segmentation and VLAN mapping

QoS for Business-critical Applications

- Celona Microslicing™ delivers automated, fine-grained QoS
- Policies can be applied on a per device, per application basis
- Traffic prioritized without device-level configuration

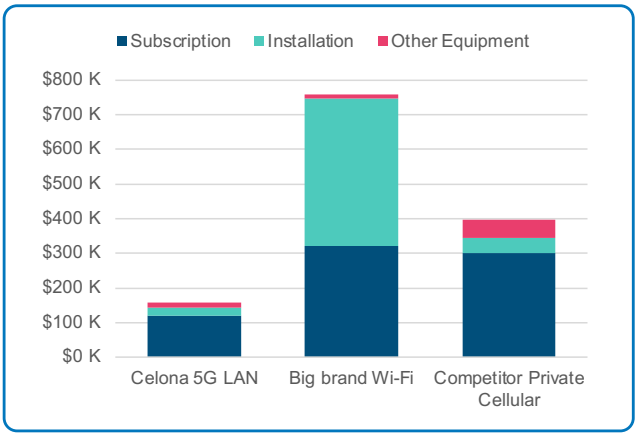
Cellular Coverage and Emergency Alerts

- Celona Neutral Host solutions brings full-strength MNO signals to areas with poor or no macro coverage
- Faster deployments, low complexity and costs compared to Distributed Antenna System (DAS)
- Natively works with MNO SIMs and BYOD devices
- Support for e911 and emergency services within the campus

Enterprise Friendly, Operation and Management

- Single pane of glass for streamlined management
- Cellular expertise not required

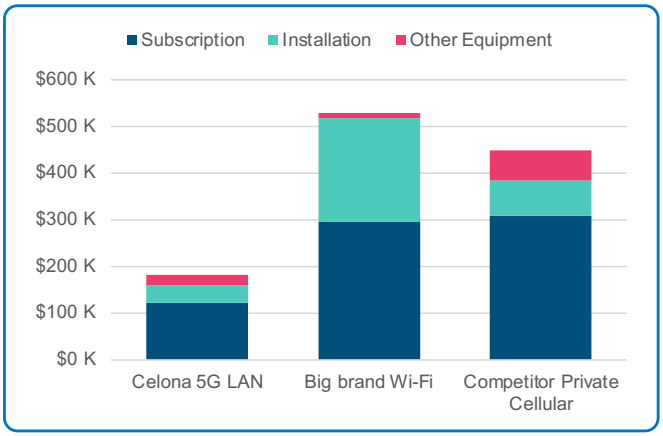
Significantly Better Network with Lower TCO than Wi-Fi



Data Center Yard | 1.8M sq-ft

Celona 5G LAN APs: 4

Wi-Fi APs: 72



Data Center Indoors | 700 K sq-ft

Celona 5G LAN APs: 13

Wi-Fi APs: 121

TCO Calculator

"Private 5G (benefits) is causing us to question our Wi-Fi strategy."

- Lyondell Basell

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Celona 5G LAN: Better coverage, reliability and security, faster deployment, lower TCO

CONTACT US