

Disrupting Distributed Antenna Systems (DAS): 5G LANs with Neutral Host

Introduction

Despite the significant enhancements with LTE, good and reliable indoor coverage has illuded many enterprises. This is primarily due to RF signal penetration indoor using macro cell, and the variability of signals based on the material used for the building construction.

To meet the challenge, Distributed antenna systems (DAS) were introduced as a way of extending the public cellular coverage indoors. DAS are essentially networks of antennas connected to a common source and distributed throughout an enterprise building / facility to extend public cellular wireless network coverage.

DAS require fiber optic or coaxial cables to connect everything, which generally comes with a very high price tag, especially for large venues and campuses with multiple buildings.

Needing cables for every radio head can complicate cable routing, management, and optimization. For any upgrades for new capabilities, DAS require on-site technicians to replace base stations or modify radio heads, usually leaving not much room for infrastructure updates during its lifecycle. Needless to say, DAS are not “software-defined” and are built with one task in mind.

Do we have an alternative

CBRS powered private mobile networks offer an alternative; a disruptive alternative that can replace DAS across any indoor environment. A private cellular wireless network that can accommodate users with subscriptions from different operators, and one that can treat these networks to be same as their home network, is a Neutral Host Network.

The user subscriptions can belong to a macro network operator (MNO), a Multiple System Operator (MSO) or a Mobile Virtual Network Operator (MVNO) – also known Participating Service Providers. Offloading traffic to the Neutral Host Network based on the business agreement can help accommodate immediate transitions or to extend coverage when the footprint for the home network operator is poor or non-existent.

Based on our comparison of industry average cost factors for DAS solutions and Celona's CBRS powered 5G LAN solution, building owners / operators can save improve their total cost of ownership by 15x in infrastructure cost savings alone. In addition to the significant cost savings, a Celona 5G LAN enables use cases that are simply not possible with a DAS solution – enabling investment protection for many years ahead.

Celona 5G LAN as a Neutral Host Network

At a high level, Celona's 5G LAN solution provides an unmatched opportunity for smart buildings and their managed services partners: a software-centric approach that makes it possible to enable private cellular wireless connectivity for multiple use cases simultaneously – delivering strong ROI with a non-metered cost structure.

Here are the top 5 benefits of the solution:

1. Ability to support multiple MNO subscribers on the same wireless network,
2. Lower cost to design, acquire and operate enabling deployments at scale,
3. Full control over the network configuration and devices that connect,
4. Guaranteed QoS per application across a myriad of private use cases, and
5. Higher degrees of privacy and security for critical infrastructure connectivity.

Deployed as overlay to any IT infrastructure across enterprise, government offices, school networks, Celona 5G LAN does not require separate fiber/coax backhaul. Private applications such as critical IoT infrastructure connectivity, public safety voice and staff push-to-talk communications or video surveillance applications can be supported within the same Celona 5G LAN. With a growing list of digital initiatives for many years to come, it further improves return on investment and reducing its overall TCO.

For neutral host or private use case, Celona's patent pending MicroSlicing™ technology appropriately secures and assigns specific service levels for latency and throughput. Each of the Participating Service Providers with a unique Neutral Host profile would then be applied a unique MicroSlicing policy within a Celona 5G LAN. This will ensure that each participating entity will be applied with strict Quality of Services (QoS) guarantees and service level agreements (SLA) for voice and data traffic flows.

Such MicroSlicing policies can be adjusted at any point in time via software – no need to touch the infrastructure in place, no need for teams of engineers to visit onsite for a re-design.

Capacity and coverage planning for public cellular extension and private use cases are automated and managed centrally. In addition, within the Celona 5G LAN platform, Key Performance Indicators (KPI) will help measure the quality of experience for subscribers of each of the participating service providers.

Conclusion

A Celona 5G LAN delivers a single network, for many participating service providers to Neutral Host, many subscribers, many private use cases, software defined policies for all and experience KPIs for each app – truly going beyond what's possible with DAS today.

To learn more about Celona's unique 5G LAN solution and how it differs from other private cellular infrastructure providers, please visit celona.io/why-celona.