

The importance of tower top infrastructure in an Open RAN paradigm



Colin Bryce August 13, 2020

Open RAN, or open radio access networks, refers to a new paradigm where cellular radio networks are comprised of hardware and software components supplied by various vendors. These components are designed to operate over standardized network interfaces that are truly open and interoperable. From our perspective, Open RAN is poised to accelerate the global availability of 5G across various deployment models and strategies. This includes expediting small cell deployments—both outdoors and indoors—and broadening the use cases they serve, as well as 5G deployment at the macro and metro layers.

In this blog, I will explore the importance of tower top infrastructure in an Open RAN paradigm.

This is a particularly relevant topic, as the new generation of Open RAN tower-top solutions will be expected to provide the same capabilities and features as proprietary OEM products in the market.

Open RAN tower top infrastructure

Firstly, Open RAN tower top infrastructure must support multiple generations of cellular network technology (2G-5G). Secondly, tower top infrastructure must accommodate a wide range of spectrum bands, as many as 9 bands in the sub-6GHz spectrum have been deployed across multiple global markets. Thirdly, Open RAN tower top infrastructure must be capable of keeping up with ever-increasing power demands while operating in an environment constrained by stringent space and weight limitations. Beyond these core requirements, MNOs face challenges obtaining zoning and planning permissions from national and local governments – creating even more pressure on Open RAN vendors to make smaller, lighter, more aesthetically pleasing units. The opex costs for deployment of equipment on rented towers are also steadily increasing.

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These requirements and challenges are precisely why CommScope has stepped up its collaboration and partnerships with Radio Unit (RU) vendors to offer cell site solutions (antenna + RU) for the Open RAN community that offer:

- Multi-band/multi-port capability
- Easy integration with FDD/TDD capable antennas and active-passive antennae solutions
- Access operator specific antennas for individual contracts
- Operation with approved antennae vendors
- Support for mounting options such as Top-Box and Zero Footprint
- Access to OTA test verification facilities
- Assistance with planning and zoning

CommScope has pioneered technology that allows interleaving of high and low band elements without impact to the radiating patterns. This technology enables integration of the mid-band antenna elements with legacy low band antenna with minimal increase in the antenna size. This technology allows beamforming capability to be integrated into a traditional passive antenna architecture under a single radome, it is an important technology for macro and metro deployments because it enables use of existing legacy cell sites.

CommScope has also developed smart power solutions to efficiently power both macro and metrocell sites. Our **PowerShift™** measures antenna losses to deliver an inherently robust power feed to macro sites while reusing existing power trunks. PowerShift™ Metro uses a centralized power distribution system to efficiently power metrocell sites.



hybrid fiber cabling to deliver power and connectivity from a central location to a cluster of neighboring small cells. A suitable centralized has access to power and the optical network, such as an outdoor distribution cabinet, telecom closet, macro base station or mobile edge l

Open RAN and 5G

We are proud to be part of the Open RAN community and honored to help design innovative tower top infrastructure solutions that will e 5G deployment. We believe that leveraging collaboration and expertise across multiple industry stakeholders is critical to providing the m solutions to both current and new customers.

Looking beyond tower top infrastructure, CommScope has also contributed to an [O-RAN Alliance](#) fronthaul specification which, among ot (i.e., connectivity between the radio unit and distributed unit) over IP/Ethernet. This is critical for integrating indoor small cells into enterp solution, along with other open interfaces and virtualized RAN functions, has been integrated in our [ONECELL™](#) small cell product to prov approach for operators to deploy 5G networks in enterprises and venues.

In conclusion, the positive impact the Open RAN ecosystem will have on the telecommunications industry in the coming years cannot be o sustainable, innovative and continuously evolving multivendor RAN ecosystem. By intelligently disaggregating the RAN, Open RAN enable parts of their solutions for specific use cases. This dynamic ecosystem encourages the adoption of next-generation applications and service: models and revenue streams. Perhaps most importantly, Open RAN is accelerating the global availability of 5G across various deployment i

About the Author



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Colin Bryce, director of technical sales at CommScope, is responsible for providing technical support for CommScope's Wireless Sales activit technical and commercial evaluations of customer requirements to ensure that CommScope's proposals and roadmaps meet market needs. experience in the telecommunications industry, most of which has been spent in mobile communications. He has worked for major equipm and the USA in product development and management positions as well as business development roles. Colin has a Bachelor of Science de and electronic engineering from the University of Strathclyde, Glasgow and a postgraduate diploma in accounting and finance form the In Accountants, United Kingdom.