



# Nokia AirScale Radio Access

Radio that's ready to deliver 5G today

Executive Summary

The mobile industry is in need of new, more flexible ways to deliver a much wider range of services. Mobile operators face many challenges – mobile broadband traffic is doubling annually; 50 billion things will be connected by 2025; new 5G requirements and radio frequencies; low latency, huge connectivity and extreme capacity to support a multitude of new use cases; and intense pressure to reduce carbon emissions.

Nokia is responding to all these challenges with AirScale Radio Access, an entirely new way to build radio access networks that deliver services with unlimited capacity scaling and market-leading latency and connectivity.

Combining all the elements needed to help operators address the new opportunities of the Internet of Things (IoT) and 5G, Nokia AirScale Radio Access can run all technologies in the same radio access and use any architecture topology.

## The components of a ground-breaking solution

Nokia AirScale Radio Access is a complete radio access generation that helps operators to address the increasing demands of today and tomorrow.

The solution comprises:

- Nokia AirScale Base Station, which includes multiband RF elements and system modules
- Nokia AirScale Active Antennas:
  - Nokia AirScale Compact Active Antennas can be rapidly deployed as either capacity extensions or coverage fixes. Their compact size makes them ideal for deployment at already crowded antenna sites
  - Nokia AirScale Massive MIMO Adaptive Antenna delivers significant improvements in spectral efficiency and throughput capacity compared to conventional antennas. They are ready to support the exacting needs of 5G.
- Cloud RAN with Nokia AirScale Cloud Base Station Server and the Nokia AirScale RNC (cloud-based controller for 3G) running on Nokia AirFrame cloud infrastructure
- Nokia AirScale Wi-Fi, including Wi-Fi Access points and Nokia AirScale Wi-Fi Controller running on Nokia AirFrame hardware
- Common software across Nokia's radio access
- Services use intelligent analytics and extreme automation to maximize the performance of hybrid networks

## Any radio, any location

Multi-Standard, multi-band Nokia AirScale radios use innovative super wideband and multiband technology to combine up to three bands in a single radio. The same radio platform offers versatile installation for the leanest site solution.

Nokia AirScale Radio Access is a 5G platform that can simultaneously run all radio technologies in the base station – 5G, 4.5G Pro/4.9G, 3G and 2G. Wi-Fi is integrated into the same radio access and multi-connectivity is built in to split data packets over multiple radios (LTE, Wi-Fi, 5G), simplifying deployment and enabling capacity load balancing across layers for a seamless flow of data to users.

Baseband capacity can be chained to create unlimited capacity and connectivity to meet the needs of massive IoT connectivity and 5G speeds. Additional scaling can be achieved with Cloud RAN, eliminating the need to over-dimension a local Distributed RAN site.

AirScale Radio Access supports Multi-access Edge Computing (MEC) on the same servers as Cloud RAN, opening up APIs to a world of new applications, services, plug-ins integrated into the RAN and using information from real radio conditions.

The Cloud RAN provides agility and enables Internet-like continuous software delivery, taking advantage of Nokia's powerful AirFrame IT hardware that meets stringent radio access capacity and latency requirements.

Furthermore, Nokia's future-proof management solution, [Nokia NetAct™](#) and Nokia CloudBand™, can be used for legacy radio networks and Cloud RAN, offering easy transformation to virtualization. Nokia NetAct manages any radio technology (2G, 3G, LTE, Wi-Fi and 5G) and also Cloud RAN - offering fully automated and complete control of the network.

The power consumption of the new radio access is 60 percent lower than Nokia's previous market-leading base station generation and uses advanced features to consume very low energy in the absence of traffic, or to shut off network layers experiencing low traffic.

Nokia AirScale radio sites are versatile with standalone or integrated antenna, making them simpler to install and allowing them to fit any cell site to take advantage of novel locations using any available transport, enabling them to be effectively hidden from view.

With Nokia AirScale Radio Access, operators have the flexible, high capacity, future proof and highly energy efficient network solution they need to meet the challenges they face.



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