5G Advanced Signals Continuous Innovation in Mobile Networks

5G Advanced will offer new capabilities to enable demand-led network upgrades.

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5G RAN is an industrialized technology deployed at scale worldwide. It benefits from advanced, high volume manufacturing, and today—just a few years from launch—billions of customers have a 5G device. This is a foundation from which operators can offer advanced network services and serve a much greater market opportunity.

The evolution from strong 5G standalone (SA) networks to 5G Advanced will introduce diverse new service and performance capabilities to operator networks. 5G Advanced, under a strict definition, corresponds to Releases 18, 19, and 20 of the 3GPP standards (and any subsequent updates). In everyday industry usage, however, the 5G Advanced term increasingly refers to a wide range of enhancements beyond 5G SA.

Below are three key trends Heavy Reading identifies under the 5G Advanced umbrella:

- **5G Advanced will scale via continuous upgrades—with an emphasis on software.** Operators are creating network platforms that can be programmatically controlled and configured, enabling them to introduce new network features according to customer demand and wider ecosystem opportunities.

- **Network upgrades can target new use cases for monetization and/or system enhancements for efficiency and performance.** Rather than a whole system upgrade or single-function upgrade, 5G Advanced will allow horizontal, multi-function enhancements targeted at discrete service packages.

- **Network services can be launched independently of new devices.** In a programmable network model, there are opportunities to create new network services that can work with existing customer devices. Examples include location services, L4S-enhanced applications, API-enabled services, and priority access. New devices will remain vital to the ecosystem but will be less of a limitation to operator innovation.

5G Advanced RAN

The figure below summarizes 5G Advanced RAN features. Air interface enhancements are applied at the link or cluster level, RAN system evolution covers features applied to the RAN architecture, and new use cases offer monetization opportunities beyond broadband access.

Features of 5G Advanced RAN
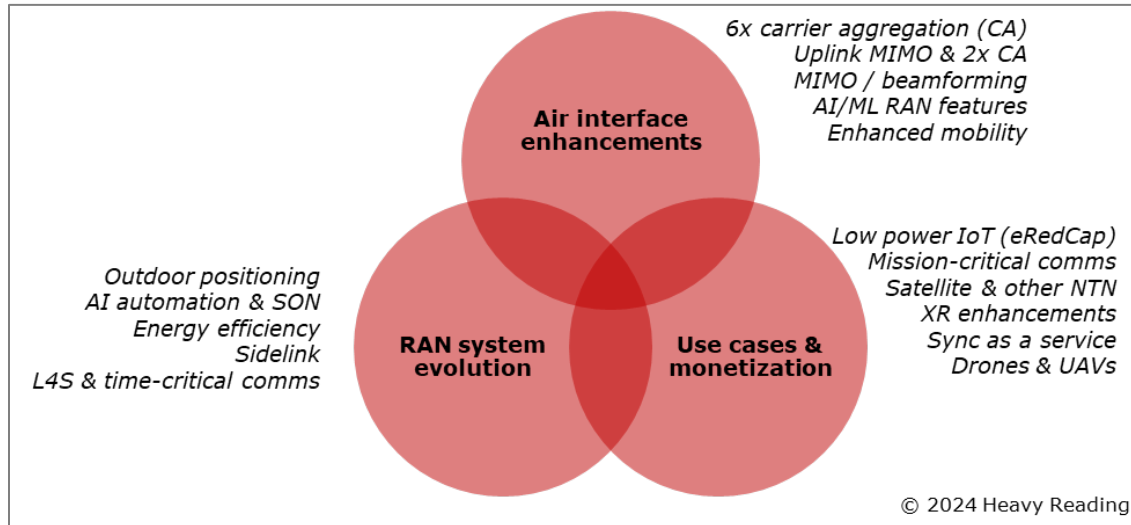
Source: Heavy Reading

Productized innovation for service-aware, intent-driven networks

To deliver a positive business outcome for operators, the large number of innovations specified in 5G Advanced must be "productized" and turned into go-to-market propositions. In many cases, a software-driven network implementation is possible, allowing operators to serve customers rapidly and extend the value of existing hardware assets.

The programmable RAN concept allows for different software packages to be applied on an intent-driven basis. An operator, for example, could enable differentiated connectivity or mission-critical service packages to serve new demands. To optimize efficiency, the operator could apply an AI-driven energy management software package. And to serve the developer ecosystem, it could deploy a wide-area positioning service and make it available through network APIs.

The service potential of 5G Advanced is rich and varied and can, in many cases, be delivered through updates to today's 5G networks. Hardware remains critical to the evolution of 5G, but software will define the 5G Advanced service-aware RAN.

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