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REVIEW OF NETWORK ARCHITECTURES, TECHNOLOGIES FOR 5G SYSTEMS

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As it is known for every one, the new mobile generation has appeared approximately every 10th year since the first 1G system. Firstly, the 2G system commercially deployed in 1992 and the 3G system appeared in 2001. Then the first 4G systems were standardized in 2012.

Mobile generations typically refer to non-backwards-compatible cellular standards following requirements stated by ITU-R. In parallel with the development of the ITU-R mobile generations, IEEE and other standardization bodies also develop wireless communication technologies, often for higher data rates and higher frequencies but shorter transmission ranges. The first gigabit IEEE standard was IEEE 802.11ac, commercially available since 2013, soon to be followed by the multi-gigabit standard Wi-Gig.

In these days, many mobile network operators are actively preparing for the communication needs beyond 2020 as they will involve a combination of existing and evolving systems. LTE-Advanced and Wi-Fi will be coupled with revolutionary technologies that are designed to meet new requirements, such as virtually zero latency to support tactile Internet, machine-to-machine, or augmented reality.

The 5G will comprise the set of technical components and systems needed to support these requirements and overcome the limits of current systems. The evolving fifth generation (5G) cellular wireless networks are envisioned to provide higher data rates, enhanced end-user quality-of-experience (QoE), reduced end-to-end latency, and lower energy consumption. This article presents several emerging technologies, which will The 5G networks will consist of nodes/cells with heterogeneous characteristics and capacities (e.g., macrocells,