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Mobile Communication Networks

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Abstract: The evolution of mobile networks from 1G to 5G brought an unprecedented global change in communication through the advent of new technologies such edge computing, ultra-reliable low-latency connections, and completely integrated, Industry 4.0 informed by this shift hit home during the lockdown imposed by COVID-19. What this developmental process has brought with it is the progressive evolution of its next generation and subsequent networks and with the arrival of 6G we are talking about its new form with detailed factors of terabit per second in terms of data speed, near zero latency, energy efficiency and coverage for virtually the first time in global civil use, supporting industry changes by introducing applications such as that of real-time holographic communication and smart automation. This paper explores multiple communication paradigms, the enhancements of 5G, and the opportunities of the 6G alongside the characteristics of mobile computing; portability, the real-time availability and the efficient utilization of the resources. The technologies presented in this paper can be used in IoT, smart cities, healthcare, and telemedicine appropriately. Furthermore, the issues related to resource constraints as well as the quality of a given network are evaluated through the consideration of the mobile agent architecture and the distributed system models like DDR providing options including the virtual means, dynamic realization of tasks as well as the intelligence-based solutions at the edges. Altogether, these developments are creating a new intelligent world connected by mobile technology

Keywords: 5G networks, 6G networks, IoT, AR/VR, AI, M2M, real-time communication, mobile agent technology, edge computing, virtualization, task migration, bandwidth, smart cities, telemedicine, security, latency, wireless connectivity, availability, automation, data transmission, mobile computing application, resource sharing, contextual information, and personalized services

