

CELLULAR ARCHITECTURE AND KEY TECHNOLOGIES FOR 5G WIRELESS COMMUNICATION

ABSTRACT

The fourth generation wireless communication systems have been deployed or are soon to be deployed in many countries. However, with an explosion of wireless mobile devices and services, there are still some challenges that cannot be accommodated even by 4G, such as the spectrum crisis and high energy consumption. Wireless system designers have been facing the continuously increasing demand for high data rates and mobility required by new wireless applications and therefore have started research on fifth generation wireless systems that are expected to be deployed beyond 2020. In this article, we propose a potential cellular architecture that separates indoor and outdoor scenarios, and discuss various promising technologies for 5G wireless communication systems, such as massive MIMO, energy-efficient communications, cognitive radio networks, and visible light communications. Future challenges facing these potential technologies are also discussed.