Abstract

The evolution towards 5G mobile communication networks will be characterized by increasing number of wireless devices and service complexity, while the requirement to access mobile services will be essential.

This paper presents an overview of the evolution of wireless networks, and focus on future mobile communication generation (5G) with its requirements, Challenges and Services. In addition, the paper proposes a heterogeneous architecture for 5G networks. The key ideas for each of the technologies are stated, along with the potential impact on 5G networks architecture.

The proposed architecture key elements such as Small cells, Massive MIMO, mm-waves, D2D communication, full-duplex communication, energy harvesting, Cloud-RAN and Wireless Network Virtualization, all of these technologies serve together to ensure users with Quality of service (QoS) requirement in a spectrum & energy efficient manner.
References


**Index Terms**

Computer Science  
Networks

**Keywords**

5G networks, wireless cellular networks, 5G networks, 5G heterogeneous network architecture, small cells, D2D communications, Massive MIMO, mm-wave, C-RAN, energy harvesting.