Meeting energy-efficient and QoS requirements of 5G using D2D communications

Jean-Marc Kelif and **William Diego**
Orange Labs, France

Device-to-device (D2D) communication is a promising technology for the future wireless systems. It allows direct communication between devices, which provides improvements in terms of delay, throughput and energy consumption. Therefore, it can contribute to achieving the ambitious requirements of future 5G wireless system. In this sense, energy efficiency has become a key requirement in the design of 5G technology. In this paper we analyze the energy-efficiency improvement provided by D2D communications in an overlaying scenario, in the context of a realistic wireless network system. This analysis takes into account the two D2D phases, discovery and communication. A centralized architecture is considered to manage discovery, which is a key phase on D2D communications. Numerical evaluation shows improvement in terms of energy-efficiency, reachable throughput and outage probability.