Technological evolution of mobile user equipments(UEs), such as smartphones or laptops, goes hand-in-hand withevolution of new mobile applications.

 However, running computationallydemanding applications at the UEs is constrained bylimited battery capacity and energy consumption of the UEs.Suitable solution extending the battery life-time of the UEsis to offload the applications demanding huge processing to aconventional centralized cloud (CC). Nevertheless, this optionintroduces significant execution delay consisting in delivery ofthe offloaded applications to the cloud and back plus time ofthe computation at the cloud. Such delay is inconvenient andmake the offloading unsuitable for real-time applications. Tocope with the delay problem, a new emerging concept, known asmobile edge computing (MEC), has been introduced. The MECbrings computation and storage resources to the edge of mobilenetwork enabling to run the highly demanding applicationsat the UE while meeting strict delay requirements. The MECcomputing resources can be exploited also by operators and thirdparties for specific purposes. In this paper, we first describemajor use cases and reference scenarios where the MEC isapplicable. After that we survey existing concepts integratingMEC functionalities to the mobile networks and discuss currentadvancement in standardization of the MEC. The core of thissurvey is, then, focused on user-oriented use case in the MEC,i.e., computation offloading. In this regard, we divide the researchon computation offloading to three key areas: i) decision oncomputation offloading, ii) allocation of computing resourcewithin the MEC, and iii) mobility management. Finally, wehighlight lessons learned in area of the MEC and we discussopen research challenges yet to be addressed in order to fullyenjoy potentials offered by the MEC.