ETSMC018- 2017 Collaborative Mobile Edge Computing in 5G Networks: New Paradigms, Scenarios, and Challenges

Abstract

MEC is an emerging paradigm that provides computing, storage, and networking resources within the edge of the mobile RAN. MEC servers are deployed on a generic computing platform within the RAN, and allow for delay-sensitive and context-aware applications to be executed in close proximity to end users. This paradigm alleviates the backhaul and core network and is crucial for enabling low-latency, high-bandwidth, and agile mobile services. This article envisions a real-time, context-aware collaboration framework that lies at the edge of the RAN, comprising MEC servers and mobile devices, and amalgamates the heterogeneous resources at the edge. Specifically, we introduce and study three representative use cases ranging from mobile edge orchestration, collaborative caching and processing, and multi-layer interference cancellation. We demonstrate the promising benefits of the proposed approaches in facilitating the evolution to 5G networks. Finally, we discuss the key technical challenges and open research issues that need to be addressed in order to efficiently integrate MEC into the 5G ecosystem