Radio Resource Allocation in LTE-Advanced Cellular Networks with M2M Communications

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The paper entitled ?Radio Resource Allocation in LTE-Advanced Cellular Networks with M2M Communications? presents the Machine-to-Machine (M2M) communications as a means for providing ubiquitous connectivity between machines without the need of human intervention. To support a significantly large number of autonomous devices, the M2M system architecture needs to be extremely power and spectrum efficient, which may be addressed with the aid of the relevant radio resource allocation schemes. In this respect, the currently existing features of M2M services are outlined primarily for LTE-Advanced, including the relevant architectural enhancements proposed by the authors. In particular, when opposed to the traditional human-to-human (H2H) services, such as voice or web streaming, M2M services are shown to have very different requirements on a communication system due to their characteristics and given the large increase in the number of Machine-Type Communication (MTC) devices. Following, various radio resource allocation schemes are described and quantified in terms of their applicability to LTE-Advanced cellular networks with the aim of minimising co-channel interference and maximising network efficiency, and then supported with system-level simulation results demonstrating that the proposed schemes can improve the network performance in terms of user utility. The paper concludes that M2M communications are to be an emerging technology facilitating the deployment of the Internet of Things (IoT) concept by means of, among others, the aforementioned cellular technology.

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