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Performance analysis of cell cooperative algorithm for small-cell enhanced LTE network

Chia-Nan Lin
Industrial Technology Research Institute, Taiwan

Due to growth of heavy traffic, small cell enhancements have been discussed in LTE Release 12 since December 2012. In this paper, a cell cooperative algorithm (CCA) is presented for small-cell enhanced LTE network. The deployment scenario that a user equipment (UE) within coverage of both the macro cell and the small cell simultaneously considered in 3GPP TR36.932, is focused in this article. In the proposed CCA, the connectivity of a UE to a macro cell or a small cell is mainly depended on speed of the UE that resides in the coverage of a small cell. In other words, a low-speed UE receives heavy and high priority traffic by a small cell, and a high-speed UE receives data through a macro cell to reduce frequent handover. For the purpose of performance evaluation, a simulation model is composed of multiple UEs which uniformly distribute and randomly move in enhanced small cells within a macro cell. Simulation results show that the UE speed and QoS class identifier (QCI) need to be taken into account so that the performance such as throughput and session drop probability with CCA are better than that without CCA.

Biography

Chia-Nan Lin received the PhD degree from the Department of Electrical Engineering, National Sun Yat-sen University, Kaohsiung, Taiwan, in 2014. He is currently working at the Information and Communications Research Laboratories, Industrial Technology Research Institute, Hsinchu, Taiwan, as an Engineer. His research interests are in the area of wireless and mobile cellular networks.

chiananlin@itri.org.tw

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