

Neighbour Cell List Reduction in Multi-Tier Heterogeneous Networks

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Abstract : The ongoing call or data session must be maintained to ensure a good quality of service. This can be accomplished by performing the handover procedure while the user is on the move. However, the dense deployment of small cells in 5G networks is a challenging issue due to the extensive number of handovers. In this paper, a neighbour cell list method is proposed to reduce the number of target small cells and hence minimizing the number of handovers. The neighbour cell list is built by omitting cells that could cause an unnecessary handover and handover failure because of short time of stay of the user in these cells. A multi-attribute decision making technique, simple additive weighting, is then applied to the optimized neighbour cell list. Multi-tier small cells network is considered in this work. The performance of the proposed method is analysed and compared with that of the existing methods. Results disclose that our method has decreased the candidate small cell list, unnecessary handovers, handover failure, and short time of stay cells compared to the competitive method.

Keywords : handover, HetNets, multi-attribute decision making, small cells

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