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Abstract

Femtocell has proved to be a promising technology to enhance indoor coverage and network throughput. Dense deployment of femtocells facilitates efficient offloading of data traffic from the macrocell network to the femtocell network. However, this dense deployment may result in serious inter-femtocell interference. Considering limited coverage radius of the femtocell, frequent handovers is another challenge which may result in excessive call dropping. In order to improve QoS of mobiles users in terms of call blocking ratio, we suggest a predictive resource reservation technique. Our proposed technique first calculates the probability distribution of UEs' locations in order to optimally deploy femtocells using Active LeZi Algorithm. Then, we use regression-based prediction algorithm (Box-Jenkins Model) to forecast the inter-call arrival and call duration distribution. Finally, we reserve the resources for users in multiple femtocells as to reduce the chances of call dropping. Our proposed technique has shown significantly improve the performance of the network in terms of call blocking, system throughput, and energy efficiency.

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Keywords

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