

Access Control for hybrid Femtocell Network based on AGV Mechanism

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Abstract—As most of voice calls and data traffic originates indoors, femtocells have been one of the most promising trends in LTE, which are short-range, cost-beneficial and low-power cellular home base stations that can improve indoor coverage and voice/data quality of service (QoS). One of the major challenges for femtocell network is the access control. The hybrid access control mechanism, as a tradeoff between open and closed scenario, is the most promising access mechanism from which both users and operators benefit. Femtocell user equipments (FUEs) select femtocell access points (FAPs) according to their reported channel information which FAPs confidently own, and selfish FAPs have incentive to report larger information to win greater opportunity to be selected. Considering the aforementioned truth-telling in access control issue, this paper proposes access control scheme for hybrid femtocell network based on Arrow-d'Aspremont-Gerard-Varet (AGV) mechanism. Close form for the payment is given. Moreover, the access control scheme is nearly optimal performances with low computational complexity compared with the optimal access scheme. Furthermore, the simulation results demonstrate that the access control scheme can be apply to hybrid femtocell network.

Keyword—Femtocell, hybrid, access control, truth-telling, AGV



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