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A new fractional channel policy

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↑ ABSTRACT

Dropping probability of handoff calls and blocking probability of new calls are two important QoS measures for cellular networks. Since the dropping probability of handoff calls is more important, call admission policies are used to maintain the upper bound of dropping probability of handoff calls. The fractional channel policy (FC) is a general call admission policy and includes most prioritized channel allocation schemes such as guard channel (GC) and limited fractional channel (LFC) policies. In this paper, we introduce a subclass of fractional channel policy, called uniform fractional channel policy (UFC) and study its performance. Expressions for both dropping probability of handoff calls and blocking probability of new calls are derived. Then it is shown that there is an optimal value for the parameter of UFC, which minimizes the blocking probability of new calls with the constraint on the upper bound on the dropping probability of handoff calls. An algorithm for finding the optimal parameter of UFC is also given. Conditions under which the UFC performs better than GC is derived. It is concluded that, the UFC policy performs better than GC policy under the low handoff/new traffic ratio.