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Abstract
When numerous mobile hosts (MHs) issue queries to the base stations (BSs) at the same time, the BSs must consume numerous resources to calculate those queries and that will abate the performances of the BSs. If these query results can be reused, the BSs will avoid calculating these queries repeatedly. In this paper, we propose a reforming query process, called Mobile-host Cooperative Caching (MCC), to improve the service performances of the BSs. MHs can avoid issuing new queries or can narrow the query range by utilizing the results of nearby MHs. Consequently, BSs can reduce the loads for calculating these queries and that will improve the service performance. We also define five approaches to select MHs to download results. They are First Come First Download (FCFD), Largest Range First Download (LRFD), Smallest Range First Download (SRFD), Largest Non-Overlap Download (LNOD), and the hybrid method of SRFD and LNOD, namely SRFD & LNOD Hybrid Download (SLHD). We also propose a new cache replacement approach to improve the cache performance of MCC. The experiment results show that the MCC effectively reduce the query requests and the loads of the BS.
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