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CLASSIFICATION METHOD OF 5G SATELLITE NETWORK COMPUTING TASKS BASED ON EDGE DATA OFFLOADING

Abstract

The low orbit satellite communication network covers a wide range, which well supports the construction and use of 5G satellite network. The data transmission volume of 5G satellite network is large, so the delay cannot meet the requirements of user service quality for transmission tasks requiring large bandwidth, the network performance is not stable, and the overall link utilization rate is low. In this paper, satellite earth stations are added in areas with dense user distribution and heavy load of macro base stations, so as to make full use of the advantages of low-orbit satellite network to assist 5G communication. Satellites deployed in near-earth orbit are used as communication nodes to transmit part of the data, and a 5G satellite network structure based on edge data offloading is constructed. Taking into account the data characteristics of the computing task, the total amount of communication resources required and the upper limit of the delay tolerated by users, the tasks to be calculated are classified reasonably, and data offloading is carried out at the edge of the network structure constructed in this paper, so as to improve the real-time processing capacity of the network. In this paper, satellite network and computing tasks are modeled and simulated, and appropriate nodes are selected for computing tasks according to users' service quality requirements. Experimental results show that this network structure and task classification method can effectively reduce the overall network transmission delay and improve the network throughput. Keywords: edge data offloading; 5G satellite network; low orbit satellite; task classification