

Design of buffered double linked list for LEO satellite beam-hopping forwarding

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Abstract

The beam-hopping technology can solve the problems of uneven user distribution and uneven service demand, and improve the efficiency of resource utilization. It is one of the important technologies of future satellite-ground integrated communication. However, the mobility of LEO satellites and the on-demand scheduling of beams make each satellite beam correspond to multiple ground wave positions, which brings great difficulties to data processing. In this paper, after analyzing the difficulties of the data forwarding buffer of the beam-hopping system, a double-linked list structure of user state chain and data buffer chain is proposed, which solves the problem of data forwarding between the satellite and users in the dynamic state, and provides an efficient solution for the data exchange of the beam-hopping LEO satellite.

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