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Author: Dr. Liye Zhao
DFH Satellite Co. Ltd., China, miety@sohu.com

Mr. Yandong Li
China, liyandong@dfh.com
Mr. wang Shaobo
China, sopower_sd@hotmail.com

Dr. Yang Ma
DFH Satellite Co. Ltd., China, mayang1982dfh@sohu.com

A NEW ROUTING PROTOCOL FOR DEEP SPACE COMMUNICATION BASED ON NETWORK CODING

Abstract

The problem of long delay, large bit error rate and intermittent interruption of deep space communication environment leads to an unacceptable packet loss rate for file delivery. In this paper, a new routing protocol for deep space communication is proposed. The link state information of the relay nodes is introduced into routing calculation stage and network coding based retransmission is used for data integrity. The deep space receive terminal can decode the coded data packets from different routing paths and do not need to detect which specific packet has been lost. PCAR (packet correct arrive rate) can be improved at the assist of this protol with no extro complex end-to-end data integrity menthod. Besides, the network coding basd protocol do not need global information of the whole deep space network and enjoys relative low computation complexity.