SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Fixed and Broadcast Communications (3)

Author: Dr. wang chunfeng
China Academy of Space Technology (CAST), China, wang.jessen@gmail.com

SPCS-TP RELAY DESIGN AND TEST

Abstract

The Space Communications Protocol Standards (SCPS) has proposed to guarantee the safety of the end-to-end data transportation of the space links; it is the extension for space communication of TCP/IP, especially for the transport protocol SCPS-TP. This paper brings forward SCPS-TP relay technical which can be used in multistage satellite link communication and space communication gateway. SCPS-TP relay is a communication repeater which can establish TCP connection independently with both sides, and forwards packets transparently. The six-step SCPS-TP(TCP) handshake procedure and principle are described. The SCPS-TP Pending list is designed to manage connection. TCP sequence convert scheme is designed. Flow Table method is used to control TCP connection without losing any performance. SCPS-TP relay have the function to detect and prevent network attacks because that it doses intercept TCP connection and avoid SYN attack etc. SPCS-TP relay prototype product is done by network processor, including packets filter module, sequence convent module, relay manage module, and etc. more than two thousands TCP connection is tested simultaneously. SCPS-TP relay is an efficient method in space internet networks and can enhance communication capability.