SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Near-Earth and Interplanetary Communication Systems (4)

Author: Mr. venkatesh venkatesh
ISRO Satellite Centre (ISAC), India, venkatnb@isac.gov.in

Dr. Vinod Kumar Agrawal
Indian Space Research Organization (ISRO), India, agrawal@isac.gov.in
Dr. R Murali
India, dr_muralir@yahoo.co.in

EVALUATION OF SCTP FOR DEEP SPACE NETWORKS

Abstract

The Stream Control Transmission Protocol (SCTP) has recently been standardized as a new Transport protocol in the IP protocol suite. An SCTP is based on the core features of TCP protocol and it incorporates a number of advanced and unique features like Multi-Streaming and Multi-homing which are not available in the existing TCP. Since TCP is a byte stream oriented protocol, TCP is not always well suited for applications that need reliable message based transport. Therefore, SCTP was designed to provide this feature. Although the suitability of TCP and SCTP over satellite networks for Geostationary (GEO) and Lower Earth Orbit(LEO) has been widely studied, the suitability of SCTP over Satellite networks to Communicate Deep Space need to be evaluated. The Communication to Deep Space is facilitated with number of Spacecrafts/Relay Networks placed at points such as Langrangian Points and across each points SCTP protocol should be evaluated. The Objective of this article is to investigate the suitability of SCTP for data communication over satellite links to Deep space networks. This paper mainly focuses on the advanced features of SCTP that enhance the performance in Satellite Deep Space networks and better utilization of the bandwidth of Satellite Deep Space Networks, while at the same time avoiding congestion collapse in the shared networks. Especially we define the optimal number of streams in multi-streaming and explain how it $a_ectstheperformanceofdeepspacenetworks. Finally, weanalyzesuitabilityof theSCTPoverSatellitelinkstoDeepSpacenet$