Abstract

NASA proposes to develop a common infrastructure for all its forthcoming space exploration missions. This infrastructure called the Interplanetary Internet (IPN) will take the Internet of the
Earth to outside planets and facilitate in the efficient transfer of the huge amount of scientific data collected by the space probes back to Earth. The development of an efficient transport protocol for the Interplanetary Internet is a major challenge to the research community. In this paper, a survey has been done for all the major transport protocols developed for deep space communication. The paper discusses the infrastructure of the IPN along with the major challenges for deep space communication. Emphasis has been made on the issues of transport protocol design for LEO-GEO based satellite networks and deep space communication networks. The genesis of the work on Interplanetary Internet and the evolution of the concept of Delay Tolerant Networks have been explained. An attempt has been made to discuss all the major transport protocols and conventional approaches used for transport protocol design for deep space networks. The concepts related to IPN, DTN, Bundle Layer, Disruption Tolerant Networks, DTN Convergence Protocols, LTP, Saratoga, DS-TP, DTTP, ARC, TP-Planet, and CCSDS CFDP have been discussed.

Reference

A Survey of Transport Protocols for Deep Space Communication Networks


DTN Research Group, April 2007.
A Survey of Transport Protocols for Deep Space Communication Networks


Index Terms

Computer Science

Networks
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