Abstract

Emerging standardization of Geo Mobile Radio (GMR-1) for space segment technology like satellite system is having strong resemblance to terrestrial GSM (Global System for Mobile communications) at the upper protocol layers of OSI and TCP (Transmission Control Protocol) is one of them. This space segment technology as well as terrestrial technology, is characterized by periodic variations in communication properties and coverage, causing the termination of ongoing call as connections of Mobile Nodes (MN) alter stochastically. Although provisions are made to provide efficient communication infrastructure this hybrid space and terrestrial networks must ensure the end-to-end network performance so that MN can move seamlessly among these networks. However from connectivity point of view current TCP performance has not been engineered for mobility events in multi-radio MN, when a sudden change in connectivity, due to handover, occurs. While there are protocols to maintain the connection continuity on mobility events, such as Mobile IP (MIP) and Host Identity Protocol (HIP), TCP performance engineering had less attention. TCP is implemented as a separate component in an operating system, and is therefore often unaware of the mobility events or the nature of multi-radios’ communication. This paper aims to improve TCP communication performance in Mobile satellite and terrestrial networks.
Proactive TCP Mechanism to Improve Handover Performance in Mobile Satellite and Terrestrial Networks

References

- Falk A., Jasapara N., "Can a Satellite be an Internet router?" Available at: http://scholar.google.com/scholar?q=Can+a+Satellite+be+an+Internet+router&btnG=&hl=en&as_sdt=0%2C5
- Vidales P., Patanapongpibul L., Mapp G. and Hopper A., "Experiences with
Heterogeneous Wireless Networks, Unveiling the Challenges; Available at: http://www.cl.cam.ac.uk/research/dtg/publications/public/pav25/HetNets04-Vidales.pdf
- "TCP auto-tuning zoo"; Available at: http://www.csm.ornl.gov/~dunigan/net100/auto.html

**Index Terms**

Computer Science  
Wireless Communications

**Keywords**

Satellite-terrestrial Networks  TCP  Inter-system Handover