Abstract

Mobile Ad hoc Network (MANET) routing protocols studies in the last decade have focused more on proactive routing protocols with many specifics to data traffic. Only fewer works have addressed the issues of reactive protocols supporting voice application. This research work analyses the performance of VoIP application in MANET configured with Temporary Ordered Routing Algorithm (TORA) routing protocol as on-demand routing protocol. The VoIP application is evaluated using four different parameters namely; codec, MAC protocol, mobility and node density in an OPNET simulation environment. The quality of transmission was measured through different performance metrics such as jitter, Mean Opinion Score (MOS), end-to-end delay and throughput. Results show that major metrics that had high impact on the performance of the network included mobility and node density. It research proved that communication in an ad hoc network using TORA is more productive and effective with fewer nodes. It could also be said that given the utilization of TORA routing protocol in MANET, quality of voice communication is disproportionate to node density. Increase in the number of nodes greatly depreciates voice quality. In the whole, the work provides a very good analysis that could help the academia and industries in reaching decisions for a most suiting routing
protocol at any given ad hoc voice communication setup.

References

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- Xiong Hong, Guo Yuan, and Zhu Fang, &quot;Simple Voice over IP (VoIP) Implementation,&quot; EEL6586, pp. 1-12, 2003.
- H M Chong and H S Mathews, &quot;Comparative Analysis of Traditional Telephone and Voice-over-Internet-Protocol (VoIP),&quot; in International Conference record on IEEE and the Environment, 2004, pp. 106-111.
- U T Clausen and R Cole, &quot;MANET Network Management and Performance Monitoring for NHDP and OLSRV,&quot; in International Conference on Computer Network and Service Management (CNSM), 2010, pp. 290-293.
Optimising VoIP Traffic over MANET: Leveraging the Power of TORA On-Demand Routing Protocol

- L. N. P Santos, "Voice Traffic over MANET: A Performance analysis of the optimised link state routing protocol (OLSR)", Department of Air University, Air Force Institute of Technology, Ohir-India, Thesis 2009.
- Encyclopeadia, "Encyclopeadia on ad hoc and ubiquitous computing.", [Online]. http://books.google.co.uk/books?id=ueSFeCoNNP0C&pg=PA588&lpg=PA588&dq=mobility+in+MANET+with+VoIP&source=bl&ots=u9gSTwESIm&sig=NdK5gWbV5rT6MMujyMbEIml0thY&hl=en&sa=X&ei=QH8pT_SyMsGb8gOFpp3XAw&ved=0CGwQ6AEwBw#v=onepage&q=mobility%20in%20MANET%20with%20VoIP
- Minhas Qurratul_Ain, Mahmood Hasan, and Malik Hafiz, "The Role of Ad Hoc Networks in Mobile Telecommunication", Department of Electronics, Quad-i-Azam University, Islamabad, Islamabad, Pakistan, Recent Developments in Mobile Communications – A Multidisciplinary Approach.

Index Terms

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