

Abstract

Last decade, a lot of research has been done in wireless communication technologies. Mobile nodes such as personal digital assistants (PDAs), notebooks and cell phones are nowadays used in human's daily life.

MANETs are networks consisting of two or more mobile nodes equipped with wireless communication and networking capabilities, but they don't have any network centralized infrastructure.

In the last few years, MANETs have emerged to be an important researched subject in the field of wireless networking.

MANETs are autonomous; however they can communicate with other external networks such as the internet. They are linked to such external networks by mobile nodes acting as gateways. This kind of network is known as hybrid MANETs.

Voice over Internet Protocol (VoIP), is a technology that allows you to make voice calls using an Internet connection instead of a regular (or analog) phone line.

The goal of this thesis is to evaluate the performance of VoIP strategies for hybrid MANETs. Two different aspects are evaluated, the session establishment performance and the voice quality.

Network Simulator 2 is used to run several simulations, two different applications are used to run voice simulations (Session Initiation Protocol and Exponential traffic generator). We evaluate two different cases for voice traffic, voice calls between two MANET nodes and voice calls between MANET nodes and external nodes.

After running the simulations, there are some performance parameters which will reveal the results. The key findings of the simulations are: adding gateways, number of voice traffic flows and the number of hops between source and destinations. There are some interesting results which reveal, for example, that adding gateways is not always beneficial.