Abstract

There is an ever increasing demand for wireless communication devices that support high data rates. Many modern communication devices support variable data rates. The maximum data rate that can be sent over the wireless channels is determined by the channel capacity and its condition. For the efficient utilization of the scarce radio spectrum, it becomes very important to compute the capacity of these wireless channels. The capacity of the channel varies depending on the radio propagation environment considered. Certain factors such as fading and interference that have a detrimental effect in the physical layer are to be considered, while evaluating the performance of the network. Further, in a mobile ad hoc network, all nodes are exposed to interference due to the free mobility of nodes. In an IEEE802.11 based ad hoc network, it is found that the advantage of using high data rates is diminished by the shorter transmission range associated with it. Using simulations, the analysis of single hop and multihop network is carried out for a good understanding of the performance of the network under multiple data rates. This paper focuses on the capacity of the wireless ad hoc networks and analyses the effect of certain key factors namely, data rate, mobility of the nodes and residual energy of the nodes. The key motivation of this paper is to study the mobile network...
behavior, which provides useful insights in developing better routing strategies in a resource
constrained network.

References

- ORiNOCO Classic Gold PC Card http://www.proxim.com/

Index Terms

Computer Science
Wireless

Keywords

Wireless Ad-Hoc Networks  Data Rate  MAC  Routing protocols  Performance
Evaluation.