

TM35

The Characterisation of Wireless LAN Errors

By Peter Tzannes: 3060440
Supervisor: Dr. Tim Moors
Assessor: Dr. Vijay Sivaraman

AIM:

Create a mathematical model that characterises wireless errors in wireless LANs within a range of home environment.

Summary:

It is a known fact that the environments in which wireless signals propagate can ultimately hinder wireless network transmissions, which can result in an increase of lost and erroneous packets, compared to its wired counterpart. Thus an understanding of what produces these irregularities is essential due to their effect on network throughput, protocol design and in determining the position of access points. In the past mathematical models (namely Markov models) have attempted to capture the statistical nature of errors, however these models have questionable relevance to the larger environment due to the minimal data set collected and the experiments performed in a single environment. This research is based on collecting a large data set in a consistent and reliable framework, where ultimately a mathematical model will be produced that analyses the packet loss and signal strength within a range of home environments.



Abbreviations:

LAN: Local Area Network

WLAN: Wireless Local Area Network

AP: Access Point

HMM: Hidden Markov Model

MAC: Media Access Control