

UNIVERSITI TEKNOLOGI MALAYSIA

PERFORMANCE EVALUATION MANET TEST BED ON LINEAR TOPOLOGY

MOHD HAFIDZ KHALILI BIN ROHIN

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TABLE OF CONTENT

CHAPTER 1 INTRODUCTION

1.0	Introduction	1
1.1	Problem Statement	7
1.2	Research Questions	8
1.3	Objectives	9
1.4	Scope of Research	9
1.5	Significance of Research	9
1.6	Organization of Thesis	10

CHAPTER 2 LITERATURE REVIEW

2.0	Introduction	11
2.1	Protocols	11
2.2	Optimized Link State Routing	14
2.2.0	HELLO Message	14
2.2.1	TC Message	16
2.2.2	HNA Message	16
2.2.3	Core Function	17
2.2.4	Auxiliary Function	17
2.2.5	OLSRD	18
2.3	Related Work	20
2.4	Summary	21

ABSTRACT

Recently MANET has become a rapidly growing research field. There are many new researches and most of the researches is done by using simulation method. However when performing MANET in real environment can be difficult because of the incompatibility issues of hardware and software. The objective of this research is to implement MANET in the real environment is known as test bed. OLSR routing protocol is selected as network protocol and the testbed are run on linear topology where nodes are in a linear position. The testbed consist three scenarios. The first scenario is a linear. The second scenario is linear too but has wider distance than scenario 1. The third scenario is forwarder scenario. Node 1 connects to node 3 via node 2(forwarder node).The performances of this three scenarios are evaluated based on the three-parameter network performance which is throughput, delay and packet loss. Experimental results show that scenario 1 show greater performance compare to scenario 2 and scenario 3. In term of throughput, scenario 1 is better than scenario 2 and scenario 3.In term of delay, scenario 2 has lowest delay compare to scenario 1 and scenario 3.In term of packet loss, scenario 1 has lowest packet loss compare to scenario 2 and scenario 3.At the end of this study, future enhancements of this research were also discussed.

CHAPTER 1

INTRODUCTION

1.0 Introduction

The need to exchange digital information outside the typical wired environment is growing. For example, a class of students may need to interact during a lecture; spectators in sports event need to update a game result; business associates serendipitously meeting in an airport may wish to share files; or disaster recovery personnel may need to coordinate relief information after a tsunami or flood. Each of the devices used by these information (exchange information and sharing resources) producers and consumers is considered as a *node* in an ad hoc network. Mobile node can be a laptop, smart phone, PDA's and etc.

The idea of ad hoc networking also called as *infrastructure less networking* [23]. The mobile nodes in the network dynamically establish routing among themselves to form their own network. While exchanging information, the nodes may continue to move, and so the network must be prepared to adapt continually. In the architecture this study interested in, networking infrastructure such as repeaters or base stations will frequently be either undesirable or not directly reachable, so the nodes must be prepared to organize themselves into a network and establish routes among themselves without any outside support. Ad hoc network can be very high dense because it can support thousand and more in small relative area