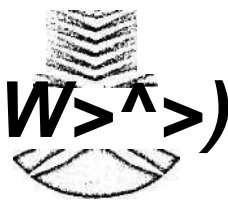


**PERFORMANCE EVALUATION OF MOBILE AD HOC NETWORK
IN WIRELESS LAN**

Project report is presented in partial fulfillment for the award of the
Bachelor of Electrical Engineering (Honors)

UNIVERSITITEKNOLOGI MARA



NORFADHILAH BT. HASAN
Faculty of Electrical Engineering
Universiti Teknologi MARA
40450 Shah Alam

APRIL 2005

ACKNOWLEDGEMENT

In the name of Allah, the gracious and merciful, syukur Allhamdullilah to give me strength and opportunity to complete this project within the given time.

One of the great pleasures of doing this assignment is acknowledging the efforts of the many people whose help me and giving good cooperation in achieve the objective of this project.

First of all, I would like to express my deep sense of gratitude appreciation and million thanks my supervisor, Assoc. Prof. Dr. Mohd. Dani bin Baba for his consistent advices, encouragement and support in doing this project.

I also like to thank to Nooraina bt. Ismail for teaching me OPNET software in doing my simulation.

Lastly, for all my friend that help me either in their idea or material. Thank you.

ABSTRACT

Mobile Ad-hoc Network (MANET) is becoming increasingly important in today's world and a number of protocols have been developed for them. However a comparison between them is lacking to help determine an optimal one. The work presented in this paper evaluates the performance of two MANET routing protocol known as Dynamic Source Routing (DSR) and Temporally Ordered Routing Algorithm (TORA). Simulation results are obtained with the aid of the OPNET Modeler, which is a commercial network simulation and evaluation tool. It discusses the effect of variation in number of nodes on protocol and assesses their relative performance. From the detailed simulation results and analysis of presented, an appropriate choice of routing protocol can be made for given network context and goal.

TABLES OF CONTENTS

CHAPTER	DESCRIPTION	PAGE
	Declaration	i
	Acknowledgement	ii
	Abstract	iii
	List Of Contents	iv
	List Of Figures	vi
	List Of Tables	viii
	Abbreviations	ix
1	Introduction	
	1.1 Overview	1
	1.2 Objective Of The Project	2
	1.3 Scope Of The Project	2
	1.4 Organization Of Thesis	3
2	Mobile Ad-Hoc Network (MANET)	
	2.1 Wireless Network	4
	2.2 Ad-Hoc Networking	6
	2.3 MANET	6
	2.3.1 Characteristics and Advantages	7
	2.4 Desired Protocol Properties	8
	2.5 Routing Protocols	9
	2.5.1 Dynamic Source Routing - DSR	10
	2.5.1.1 Route Discovery	11
	2.5.1.2 Route Maintenance	12

2.5.2	Temporally Ordered Routing Algorithm - TORA	13
2.6	Strengths and Weaknesses of DSR and TORA	14
OPNET Modeler		
3.1	Who use OPNET?	17
3.2	Why use OPNET?	18
3.3	Hierarchical Modeling	20
3.3.1	Project Modeling	21
3.3.2	Node modeling	23
3.3.3	Process modeling	24
Simulation Result and Discussion		
4.1	Simulation Environment	26
4.2	Simulation Result with Discussion	
4.2.1	Throughput	27
4.2.2	Delay	29
4.2.3	Packet Dropped	30
4.2.4	Load	31
Conclusion and Future Development		
5.1	Conclusion	32
5.2	Future Development	33
	REFERENCES	34
	APPENDIX	