Performance Evaluation & Enhancement of MARP

by

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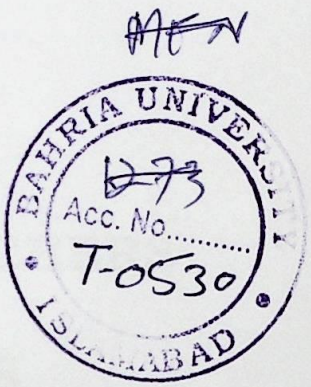

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DEDICATED
TO
OUR RESPECTABLE TEACHERS
WHO
ALWAYS GUIDES US

IN THE NAME OF
ALLAH
WHO HAS GIVEN US
BRAIN TO EXPLORE
THIS DIFFICULT TASK

ACKNOWLEDGEMENT

Allah, the Compassionate, the Merciful.

"*Read in the name of your Lord Who created. He created man from a clot. Read and your Lord is Most Honorable, Who taught (to write) with the pen Taught man what he knew not. No indeed! Man surely transgresses, Because he sees himself free from want. Surely to your Lord is the return*".

I from the depths of my heart and soul, thank God for His help and kindness, without which, my unversed mind could not have thought of anything. I pray for his mercy and kindness, so that I may lead my life according to his will.

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I am very much thankful to my fellow students who helped me morally and intellectually with new ideas and imaginations.

Last but not the least, I am thankful to myself, for being me.

Shahid Imran

ABSTRACT

Networks formed by potentially mobile nodes, with out any support of existing infrastructure are called Mobile Adhoc Networks. These networks can be used in real word for search and rescue operations, military environments, conferences, etc. The architecture of mobile adhoc networks gives the advantage of increased speed of deployment and decreased dependency on infrastructure. Regardless of the benefits, these networks have serious limitations about bandwidth and security. Other major issues include the mobility management and routing of data packets within the adhoc network. Routing protocols for mobile adhoc networks are different than protocols for conventional networks, due to increased mobility and rapid topology change, Different international organizations and universities have proposed many protocols, but no single protocol can handle all the real world network scenarios. This masters thesis evaluates some of the proposed protocols. The evaluation is done using Network Simulator 2 from Berkeley. The simulations prove the fact that no single protocol can successfully address all the networking problems in adhoc networks. Variant of distance vector routing algorithm like AODV do perform good in most of simulations but the jitter performance and the control over head do not match the performance of link state routing algorithm like OLSR. It is also evident that the routing layer alone cannot tackle all the problems, and support from link layer is required. MPR (Multipoint Relay) based Hybrid Routing Protocol (MBHR), is an enhancement over Optimized Link State Routing and Adhoc On-demand Distance Vector Routing. It combines both protocols and adds certain optimizations to further enhance the performance. A hybrid approach, which incorporates both reactive and proactive route acquisition process, can give better results as compared to existing routing protocols.

FINAL APPROVAL

This is to certify that we have read this thesis submitted by ***SHAHID IMRAN*** .It is our judgment this thesis is sufficient standard to warrant its acceptance by BIM& CS ISLAMABAD for MCS degree.

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THESIS BRIEF

Thesis Title :	Performance Evaluation & Enhancement of MARP
Objective:	To evaluate some of the proposed protocols
Undertaken By:	SHAHID IMRAN
Supervised By:	Mrs. FARZANA KHAN
Starting Date:	20th May 2005
Completion Date:	20th Sept 2005
Software Used:	Office 2000, ns/2 simulator
Operating System:	Windows 2003 XP, Linux Red Hat 9.0
System Used:	Pentium III (933 MHz)

CONTENTS

Chapter 4 SIMULATION ENVIRONMENT

Chapter 5 SIMULATION STUDY