

COMPARE AND MEASURE THE EFFICIENCY AND THROUGHPUT OF MANET PROTOCOLS

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By

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Mobile wireless ad hoc networks are infrastructure less and often used to operate under unattended mode. So, it is significant in bringing out a comparison of the various routing protocols for better understanding and implementation of them. In this Thesis, we studied and compared the performance of various routing protocols like Ad hoc On-Demand Vector routing (AODV), Fisheye, Dynamic MANET On-demand (DYMO), Source Tree Adaptive Routing (STAR) protocol, Routing Information Protocol (RIP), Bellman Ford, LAND Mark Ad hoc Routing protocol (LANMAR) and Location Aided Routing protocol (LAR). The comparison results were graphically depicted and explained.

Protocols of MANET are of primary importance in variable topology networks, such as mobile ad hoc networks. A routing protocol must determine how to transmit a data packet over multiple hops from a source node to a destination node. This determination must be performed rapidly, with minimal bandwidth consumed by control packets, and must adapt to network changes caused by node mobility and node loss, among other factors.

Numerous routing protocols have been proposed for mobile ad hoc networks. We chose to study three of the four protocols recently recommended for development by the Internet Engineering Task Force (IETF) MANET work group: AODV, DSR and OLSR. It provides a comparison between reactive (AODV, DSR) and proactive (OLSR) protocols. The route discovery process of both protocols is fooled by the transient availability of network links to nodes that were more than one hop away. Packets transmitted over a fading channel cause the routing protocol to conclude incorrectly that there is a new one hop neighbor that could provide a lower metric (hop count) route to even more distant nodes. This can occur even when nodes are stationary; mobility resulted in even less route stability.

We have compared the efficiency of two protocols on the bases of packet delivery, Congestion control and though put ratio. It is procedure to test our assertion that fading channels and unreliable network links were the cause of the failure of the routing protocols. The result was that neighbor discovery and the filtering for neighbors with whom nodes could communicate reliably enables the creation of reliable multihop routes. Based on our experiences, we outline several recommendations for future work in MANET research.

Mobile Ad hoc Network (MANET) is a collection of wireless mobile nodes that dynamically form a network temporarily without any support of central administration. Moreover, every node in MANET moves arbitrarily making the multi-hop network topology to change randomly at unpredictable times. There are several familiar routing protocols like DSDV, AODV, DSR, etc. which have been proposed for providing communication among all the nodes in the network. In This Thesis presents a performance Comparison of proactive and reactive protocols DSDV, AODV and DSR based on metrics such as throughput, packet delivery ratio and average end-to-end delay by using the NS-2 simulator.

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Abbreviations

QoS:	Quality of Services
IR:	Information Retrieved
2G:	Second Generation
MANET:	Mobile Ad-Hoc Network
3G:	Third Generation
LAN:	Local Area Network
GA's:	Genetic Algorithm
DSR:	Dynamic Source Routing
NS:	Network Simulator
AODV:	Ad hoc On-demand Distance Vector
DSDV:	Destination Sequence Distance Vector
RIP:	Routing Information Protocol
RP:	Routing Protocol
TORA:	Temporally ordered routing algorithm
WRP:	Wireless routing protocol
DT:	Distance Table
RT:	Routing Table
LCT:	Link cost table
MRL:	Mmessage retransmission list
ZRP:	Zone Routing Protocol
GSR:	Global State Routing
FSR:	Fisheye State Routing
STAR:	Source Tree Adaptive
OLSR:	Optimized Link State Routing

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