IMPACT THE PERFORMANCE BY VARYING FTP TRAFFIC LOAD ON VARIOUS PARAMETERS FOR TRAFFIC ROUTING PROTOCOL USING OPNET SIMULATOR

A project report submitted in partial fulfillment of the requirements

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CERTIFICATE

This is to certify that the project entitled "IMPACT THE PERFORMANCE BY VARYING FTP TRAFFIC LOAD ON VARIOUS PARAMETERS FOR MANET ROUTING PROTOCOLS USING OPNET SIMULATOR" in partial fulfillment for the of degree of Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING, at AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, MAKAVARAPALEM, VISAKHAPATNAM is an bonafide work carried out by M.SAI LAKSHMI (18811A0541),

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ABSTRACT

In a Mobile Ad hoc Network (MANET) there is no wired infrastructure by which the routing functionalities are performed. The mobile nodes work as routers in that the routing and message delivery is performed by the nodes. The absence of fixed centralized infrastructure and unpredictably varying topology in MANETs make routing and the design of routing protocols complex and challenging issues. A lot of prominent researches have been done on the area and different routing protocols were developed such as AODV, DSR, OLSR, TORA and others mainly for the efficient delivery of message from source to destination. A good understanding of their performance characteristics helps to find out and deploy appropriate protocol for a given network scenario and do further optimizations. Several researches have been conducted on the performance analysis and comparison of different protocols with the help of different tools and different performance characteristics. In most of these previous works, the analysis were not performed based on a broad range of control variables on which the protocols are mainly optimized such as traffic loads, network size and mobility scaling. There are no adequate and comprehensive researches on the effect of each control variables on the protocols. Most of the researches were done based on constant bit rate (CBR) on NS-2 simulator. Therefore, there is still a need for further studies on the performances of MANET protocols with different simulation platforms and different network scenarios by considering the control parameters along which the protocols are mainly optimized. In this research the performance analysis and comparison of three popular protocols (AODV, DSR and OLSR) have been conducted using OPNET Modeler under different network scenarios by scaling the FTP traffic loads, Network size and mobility speed of nodes against the performance measurement metrics of end-to-end delay and throughput. The effect of FTP traffic load scaling, network size and mobility variations

on each of the protocols considered were analyzed in terms of average end to end delay and throughput.

Simulation results show that the throughput performance increases and the delay performance decreases when traffic load and network size increase in all the protocols. Mobility has no significant effect on the performance of the protocols. OLSR and AODV have overall better performances in terms of end-to-end delay and throughput respectively in almost all the scenarios considered. Reactive protocols have inconsistent and larger delay performance.