IMPACT OF NODE VELOCITY ON TCP THROUGHPUT OF MOBILE AD-HOC DATA NETWORK (MADNET)

Eleje, Samson Ejiofor
Federal Polytechnic
of Oil and Gas, Bonny Isand
NIGERIA
Ogunnaya1@gmail.com

Reginald Idipinye Hart
Federal Polytechnic
of Oil and Gas, Bonny Island
NIGERIA
Renuld46@yahoo.com

Pepple Mc-Kelly Tamunotena
Federal Polytechnic
of Oil and Gas, Bonny Island
NIGERIA
Mckelly2014@gmail.com

ABSTRACT

A Mobile Ad-hoc Data Network (MADNET) is a self-configuring, infrastructure-less network of mobile devices (nodes) where nodes communicate and share data using wireless links. This type of network is mostly deployed in areas where centralized infrastructural setups like base stations are not available. It's mostly applicable in emergencies such as rescue operations, military applications and sharing of data in conferences. Node failures and arbitrary movement of nodes at higher node velocity break the routes and lead to the frequent operation of rebuilding routes that consume lots of the network resources and the energy of nodes. In this study, we analyze the impact of node velocity on TCP (Transmission Control Protocol) Throughput of MADNET. The network performance is evaluated on Iperf to determine the variations on the TCP throughput of the network at different nodal velocities. The study was carried out in two sections: In the first section, the client was put to motion and the server kept stationary whereas in the second section, we maintain the same conditions but the client was kept stationary and the server put to motion. Results show a drastic reduction in TCP throughput as the nodal velocity increased in the first section whereas there was little reduction in the TCP network throughput in the second section showing thatmobility is more effectively masked in when the client is stationary.

Keywords: Adhoc, Client, Iperf, MADnet, Server, TCP.