ANALYSIS OF CONTROL CONGESTION IN MOBILE AD HOC NETWORK (MANET) FOR TACTICAL COMMUNICATION SYSTEM OF BATTLESHIP

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ABSTRACT

Tactical communications is a communication used in the battlefield. Network of tactical communication systems is different from network on commercial communication systems, especially in terms of security, reliability, robustness, and congestion. The problem of tactical communication becomes more complex since there is no fixed infrastructure. Mobile Ad Hoc Network (MANET) technologies are applied to solve the problem in tactical communication systems. One of the important factors in the application of MANET in tactical communications is the network congestion management. Congestion management is needed in a MANET because MANET requires congestion arrangements management for a limited link capacity and to overcome the delay that can degrade the system performance. This study has been done with two conditions, namely condition with the implementation of network congestion management and the condition without network congestion management. The implementation of network congestion management is added to DSR and AODV routing protocols. The parameters which was observed are end-to-end delay, normalized routing overhead and packet delivery ratio. The simulation result show that the minimum result of end to end delay namely 52.6368 ms, the minimum result of normalized routing overhead namely 0.0004, and the maximum result of packet delivery ratio namely 99.94%. From the simulation result, AODV routing protokol added by congestion control and implemented in bird formation in the tactical communication system produces better performance than DSR routing protokol.

Keywords: AODV; congestion management; DSR; MANET; tactical communication
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