

Performance Evaluation of Routing Protocols in Vehicular Adhoc Networks

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Abstract : This study explores the implication of Vehicular Adhoc Network (VANET) - in the rural and urban scenarios that is one domain of Mobile Adhoc Network (MANET). VANET provides wireless communication between vehicle to vehicle and also roadside units. The Federal Commission Committee of United States of American has been allocated 75 MHz of the spectrum band in the 5.9 GHz frequency range for dedicated short-range communications (DSRC) that are specifically designed to enhance any road safety applications and entertainment/information applications. There are several vehicular related projects viz; California path, car 2 car communication consortium, the ETSI, and IEEE 1609 working group that have already been conducted to improve the overall road safety or traffic management. After the critical literature review, the selection of routing protocols is determined, and its performance was well thought-out in the urban and rural scenarios. Numerous routing protocols for VANET are applied to carry out current research. Its evaluation was conceded with the help of selected protocols through simulation via performance metric i.e. throughput and packet drop. Excel and Google graph API tools are used for plotting the graphs after the simulation results in order to compare the selected routing protocols which result with each other. In addition, the sum of the output from each scenario was computed to undoubtedly present the divergence in results. The findings of the current study present that DSR gives enhanced performance for low packet drop and high throughput as compared to AODV and DSDV in an urban congested area and in rural environments. On the other hand, in low-density area, VANET AODV gives better results as compared to DSR. The worth of the current study may be judged as the information exchanged between vehicles is useful for comfort, safety, and entertainment. Furthermore, the communication system performance depends on the way routing is done in the network and moreover, the routing of the data based on protocols implement in the network. The above-presented results lead to policy implication and develop our understanding of the broader spectrum of VANET.

Keywords : AODV, DSDV, DSR, Adhoc network

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