Comparative analysis of AODV, DSDV and GPSR routing protocols in MANET scenarios of real urban area

ABSTRACT

The widespread deployment of MANET networks that employ IEEE 802.11 as the underlying technology has attracted a great deal of research attention in both academia and industry. This has led to many new protocols specifically designed for MANET. Ad-hoc routing protocols are given most of the attention as they are the responsible of creating and maintaining the links between nodes in this network. These protocols might differ depending on the application and network architecture. Moreover, different protocols provide different performance depending on their ability to face network challenging, such as density of nodes, mobility speeds and number of connections. The main aim of this paper is to study the performance of different routing protocols in MANET with different network parameters. For this purpose, a thorough literature study is performed to identify the issues affecting the routing protocols performance and present a classification for the various approaches pursued. Then, a comparative analysis study has been conducted by simulating different routing protocols, taking into consideration different challenges and network parameters. On the basis of achieved results from the comparative study, recommendations are made for better selection of protocol regarding to application nature in the presence of considered challenges. As corroborated by intensive simulation experiments, reducing the overhead caused by sending routing messages is vital for good performance.

Keyword: MANET; Performance evaluation; AODV; DSDV; GPSR