Performance Evaluation and Comparison of Three Prominent Routing Protocols in Real Life Scenario using NS3

Abstract

Mobile ad hoc network (MANET) is a collection of several wireless devices or mobile users that can communicate among themselves over wireless links in a peer to peer basis and thereby creating a dynamic, arbitrary graph. But some adverse characteristics of MANET like dynamic topology, limited bandwidth, link failure and energy constraints, imposes new demands on routing protocol. This paper aims to study the performance evaluation and comparison of three prominent routing protocols: Destination Sequence Distance Vector (DSDV), Ad-hoc On demand Distance Vector (AODV) and Optimized Link State Routing (OLSR), in a real life scenario. In a given scenario, students investigate the historical site in which number of packets being sends and number of nodes in the network affects the communication reliability. Extensive simulations are made to evaluate the performance of these protocols using various performance differential metrics like packet delivery ratio, total energy consumption and throughput using NS3. In the end it is seen that in most simulation results, proactive routing protocols (DSDV, OLSR) performed significantly better than reactive routing protocols.
Performance Comparison of Routing Protocols of MANET in Real World Scenario using NS3

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