

Performance analysis of random-based mobility models in MANET routing protocol.

ABSTRACT

With current advances in technology, wireless networks are increasing in popularity. Wireless networks allow users the freedom to travel from one location to another without interruption of their computing services. Ad hoc networks is one of the subset of wireless network that dynamically forming a temporary network without using any existing network infrastructure or centralized administration. Therefore, it is required a good routing protocol in order to established the connection between the nodes since the mobile node can change their topology frequently. In the routing protocol, the movement of the mobile node is one of the important characteristics because it can effects the performance of the ad hoc network protocol. In this research, we have studied the effect of the different mobile node movement pattern in random-based mobility model group (Random Waypoint Mobility Model, Random Walk Mobility Model and Random Direction Mobility Model) on the performance of Ad hoc On-demand Distance Vector (AODV). The performance analysis was conducted by using the discrete-event simulator, OMNeT++. The simulator was used to simulate the mobility environment and the Open System Interconnections (OSI) layers utilized in wireless simulation. The simulation results illustrate the performance of the routing protocol varies across different performance metrics.

Keyword: Performance; Routing (Computer network management); Computer network protocols; AD hoc networks (Computer networks); MOBILE communication systems; Simulation methods & models; OSI(Computer network standard); Wireless communication systems.