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# Effects of the Origin and Target Node For MANET

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## ABSTRACT

Mobile Ad Hoc Networks (MANETs) are dynamic, infrastructure-less wireless networks where nodes act both as hosts and routers. Due to their decentralized and mobile nature, routing efficiency, data delivery, and network performance are heavily influenced by the location and behavior of the origin and target nodes. The origin node, which initiates data transmission, and the target node, the intended recipient, play critical roles in determining routing path stability, delay, packet delivery ratio, and energy consumption. This study explores the effects of various positions and mobility patterns of origin and target nodes in MANET environments. When origin and target nodes are located at the network edges, increased route discovery time, higher latency, and link breakages are observed. Conversely, nodes positioned closer to the center or within dense clusters benefit from shorter and more stable routing paths. Simulation results using standard MANET routing protocols such as AODV and DSR reveal that the spatial relationship between communicating nodes significantly affects overall network efficiency and reliability. Understanding these effects is vital for optimizing node placement, improving routing algorithms, and enhancing MANET performance, particularly in critical applications such as disaster recovery, military operations, and vehicular communication systems where reliability and responsiveness are paramount.