**ABSTRACT**

Increasing population of mobile users has lead to the demand of higher mobility support. Many protocols have been standardized for mobility management such as Mobile Internet Protocol version 6, hierarchical mobile IPv6 and proxy mobile IPv6 and so on. The predominantly used approach in the existing mobile networks is the centralized mobility management. In this, the messages transferred between mobile node and correspondent node must pass through each level due to the hierarchical architecture. When a mobile network is implemented with the centralized architecture, the messages are routed to the MN irrespective of its location using mobile IP for continuing services during the handover. But this approach is susceptible to issues such as single point of failure, non-optimized routes, latency issues, wastage of resources and security threats which affect the performance and scalability, demanding a flatter architecture with an efficient mechanism to face the traffic overload from the mobile users. Hence, the paper proposes a new scheme to form a flatter architecture by distributing the mobility management functionalities as distributed access point at the access level. The resistance against security threat such as man-in-the-middle attack, replay attack and false binding update attack has been achieved. Finally, numerical results show that the proposed scheme provides significant reduction in signaling cost and improves efficiency in route optimization