IMPROVING DELIVERY RATE IN INTERMITTENTLY CONNECTED MOBILE AD HOC NETWORK

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Abstract

A Mobile Ad Hoc Network (MANET) is a collection of mobile nodes that can communicate with each other using multihop wireless links without utilizing any fixed infrastructure and centralized controller. Each node in the network acts as both a host and a router. When communicating nodes are in motion, links can be blocked by intervening objects. These links are susceptible to frequent failures, which can cause intermittent connectivity i.e., there is no end-to-end path exists between source and destination all the time. Almost all the traditional routing protocols focus on connected networks where an end-to-end path exists between any two nodes in the network. In highly mobile or sparse networks, where partitions are not exceptional events, these routing algorithms will fail to deliver packets because no route is found to reach their destinations. Flooding based schemes and Message Ferrying schemes are proposed by many researchers to overcome network partitions in intermittently connected ad hoc network. Even though flooding based schemes are robust and have a high probability of message delivery, they suffer from an enormous overhead in terms of bandwidth, buffer space and energy consumption due to large number of transmissions per packet. Flooding scheme is not suitable if partitions last for a long duration of time. Message Ferry distributes messages between nodes which are located in different partitions which may be disconnected. Ferry moves around a fixed path for providing regular connectivity in a disconnected network. But this scheme needs online collaboration between Ferry and other nodes in the network and also huge buffer space. With this in mind, a new routing scheme Controlled Epidemic Routing with Message Ferry has been proposed. This scheme improves delivery rate and does not need any online collaboration between ferry and mobile nodes.

Keywords: Disconnected, Message Ferry, Epidemic routing, Delivery rate, Latency