Computer Networks

Rohini Naik

Recap

- Network Architecture
- Network Models

Unit 3

Network Layer

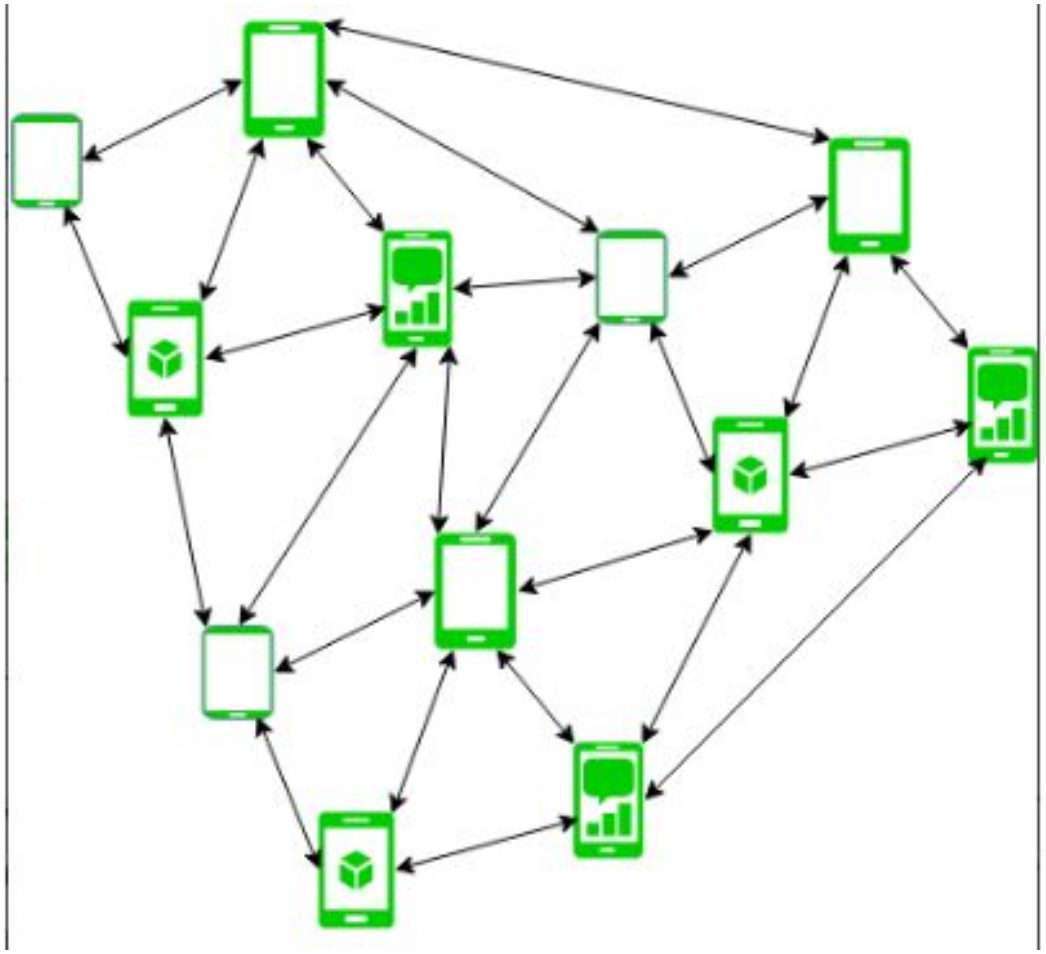
Contents

Routing in MANETs

- AODV
- DSR
- Mobile IP

MANET

- MANET stands for Mobile Adhoc Network also called a wireless Adhoc network or Adhoc wireless network
- MANET nodes are free to move randomly as the network topology changes frequently. Each node behaves as a router as they forward traffic to other specified nodes in the network.



Considerations:

Nodes do not know the topology of their network, instead they have to discover it by their own as the topology in the ad-hoc network is dynamic topology.

The basic rules is that a new node whenever enters into an ad-hoc network, must announce its arrival and presence and should also listen to similar announcement broadcasts made by other mobile nodes.

AODV

It is a reactive/on-demand routing protocol. It is an extension of dynamic source routing protocol (DSR) and it helps to remove the disadvantage of dynamic source routing protocol. In DSR, after route discovery, when the source mobile node sends the data packet to the destination mobile node, it also contains the complete path in its header. Hence, as the network size increases, the length of the complete path also increases and the data packet's header size also increases which makes the whole network slow.

Hence, Ad-Hoc On Demand Vector Routing protocol came as solution to it. The main difference lies in the way of storing the path, AODV stores the path in the routing table whereas DSR stores it in the data packet's header itself. It also operates in two phases in the similar fashion: Route discovery and Route maintenance.

DSR

It is a reactive/on-demand routing protocol. In this type of routing, the route is discovered only when it is required/needed. The process of route discovery occurs by flooding the route request packets throughout the mobile network.

It consists of two phases:

Route Discovery: This phase determines the most optimal path for the transmission of data packets between the source and the destination mobile nodes.

Route Maintenance: This phase performs the maintenance work of the route as the topology in the mobile ad-hoc network is dynamic in nature and hence, there are many cases of link breakage resulting in the network failure between the mobile nodes.

Mobile IP

Mobile IP is a communication protocol (created by extending Internet Protocol, IP) that allows the users to move from one network to another with the same IP address. It ensures that the communication will continue without the user's sessions or connections being dropped.

Thank you