Ex.no.11 PERFORMANCE EVALUATION OF ROUTING PROTOCOLS

AIM:

To Study of performance evaluation of routing protocols using simulation tool

ROUTING PROTOCOLS

There are many routing protocols available. Among them all we are working with AODV and DSR for performance analysis.

A. Ad-hoc On demand Distance Vector (AODV)

It is purely On-Demand route acquisition routing protocol. It is better protocol than DSDV network as the size of network may increase depending on the number of vehicle nodes.

1) Path Discovery Process: In order to discover the path between source and destination, a Route Request message (RREQ) is broadcasted to all the neighbours in radio range who again continue to send the same to their neighbours in there radio range, until the destination is reached. Every node maintains two counters: sequence number and broadcast-id in order to maintain loop-free and most recent route information. The broadcast-id is incremented for every RREQ the source node initiates. If an intermediate node receives the same copy of request, it discards it without routing it further. When a node forwards the RREQ message, it records the address of the neighbour from which it received the first copy of the broadcast packet, in order to maintain a reverse path to the source node. The RREQ packet contains: the source sequence number and the last destination sequence number know to the source. The source sequence number is used to maintain information about reverse route and destination sequence number tells about the actual distance to the final node.

2) Route Maintenance: A source node sends a new moving request packet RREQ to find a new route to the destination. But, if an intermediate node moves from its place, its upstream neighbor noticed the move and sends a message notification failure of the link to each of its active upstream neighbors to inform them about the move to source nodes is achieved. After the detection process is again initiated.

B. Dynamic Source Routing (DSR)

It is an On-Demand routing protocol in which the sequence of nodes through which a packet needs to travel is calculated and maintained as an information in packet header. Every mobile node in the network needs to maintain a route cache where it caches source routes that it has learned. When a packet is

sent, the route-cache inside the node is compared with the actual route needs to be covered.

1) Route Discovery: The source node broadcasts request-packets to all the neighbours in the network containing the address of the destination node, and a reply is sent back to the source node with the list of network-nodes through which it should propagate in the process. Sender initiates the route record as a list with a single element containing itself followed by the linking of its neighbour in that route. A request packet also contains an identification number called request-id, which is counter increased only when a new route request packet is being sent by the source node. To make sure that no loops occur during broadcast, the request is processed in the given order. A route reply is obtained in DSR by two ways: Symmetric-links (bidirectional), in which the backward route is followed again to catch the source node. Asymmetric-links (unidirectional) needs to discover the route up to the source node in the same manner as the forward route is discovered.

2) Route Maintenance: In the hop by hop acknowledgement at data link layer allows the early detection and retransmission of lost or corrupt packets in the data-link layer. If a transmission error occurs, a route error packet containing the address of node detecting the error and the host address is sent back to the sender. Whenever a node receives a route error packet, the hop in error is removed from the route cache and all routes containing this hop are truncated at that point. When the wireless transmission between two nodes does not work equally well in both directions, and then end-to-end replies on the application or transport layer may be used to indicate the status of the route from one host to the other

RESULT

Thus the performance evaluation of routing protocols was studied.