

Computer Networks Project Synopsis

V Semester

* Tcl script to make communication between wireless nodes using AODV routing protocol and CBR traffic.
* Calculation of Wireless Routing Overhead by AWK

Script.

*Students of* ***B5 Batch*** *namely-*

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**Description:**  
  
**Number of nodes is going to be fixed in the program. Nodes are configured with specific parameters of a mobile wireless node. After creating the nam file and trace file, we set up topography object. Initial location of the nodes is fixed. Specific X, Y coordinates are assigned to every node. Nodes are given mobility with fixed speed and fixed destination location. AODV routing protocol is used here.UDP agent is attached to sender node. LossMonitor agent is attached to receiver node. Both the agents are connected and CBR traffic is attached to UDP agent. Now communication set up for nodes are established.**

**Routing Overhead** is the number of routing packets required for network communication. Routing Overhead is calculated using awk script which processes the trace file and produces the result.

To keep up-to-date information about network routes, routing algorithms generate small sized packets, called routing packets. One example of such packets is a HELLO packet, which is used to check whether the neighbour node is active. Note that routing packets do not carry any application content, like data packets do.

Both, routing and data packets have to share the same network bandwidth most of the times, and hence, routing packets are considered to be an overhead in the network. This overhead is called routing overhead. A good routing protocol should incur lesser routing overhead.

**AODV PROTOCOL-**

***A****d Hoc****O****n-Demand****D****istance****V****ector*, **AODV** is a [routing protocol](http://www.webopedia.com/TERM/R/routing_protocol.html) for ad hoc mobile [networks](http://www.webopedia.com/TERM/N/network.html) with large numbers of mobile [nodes](http://www.webopedia.com/TERM/N/node.html). The protocol's [algorithm](http://www.webopedia.com/TERM/A/algorithm.html) creates routes between nodes only when the routes are requested by the [source](http://www.webopedia.com/TERM/S/source.html) nodes, giving the network the flexibility to allow nodes to enter and leave the network at will. Routes remain active only as long as data [packets](http://www.webopedia.com/TERM/P/packet.html) are travelling along the paths from the source to the [destination](http://www.webopedia.com/TERM/D/destination.html). When the source stops sending packets, the path will [time out](http://www.webopedia.com/TERM/T/time_out.html) and close.

AODV supports both [unicast](http://www.webopedia.com/TERM/U/unicast.html) and [multicast](http://www.webopedia.com/TERM/M/multicast.html).

❒ Whenever routes are not used -> get expired -> Discarded

❍ Reduces stale routes

❍ Reduces need for route maintenance

❒ Minimizes number of active routes between an active source and destination

❒ Can determine multiple routes between a source and a destination, but implements only a single route, because-

❍ Difficult to manage multiple routes between same source/destination pair

❍ If one route breaks, it’s difficult to know whether other route is available

❍ Lot of book-keeping involved

**Loss Monitor Agent-**

Loss Monitor is attached with receiver node in TCL script. Loss Monitor objects trace out the lost packets, and received packets and stores the corresponding details. Packet Loss is measured by accessing the loss monitor object. Received bytes are obtained using inbuilt variable bytes