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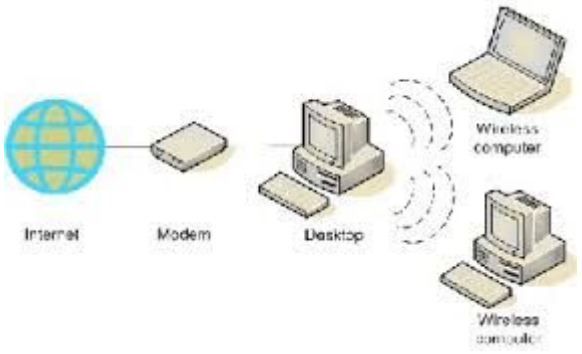
Experiment No 5

Title :

Simulation and analysis of Wireless Mobile Adhoc network using ns2

Theory :

In the aspect of simulation, the primary component in designing a mobile adhoc network is mobility model while the other components include node configuration, random topology, and communication model. In mobility model, the mobility of a node from a location to another location can be enabled using the keyword "setdest" in Tool Command Language (TCL) script. The specifications for a node's target location include x-coordinate, y-coordinate along with the speed. Nodes are configured with the components of channel, networking interface, radio propagation model, Medium Access Control (MAC) protocol, adhoc routing protocol, interface queue, link layer, topography object, and antenna type. In dynamic topology, the neighbors of each node vary with the location of that particular node. Nodes in adhoc network communicate using communication model.



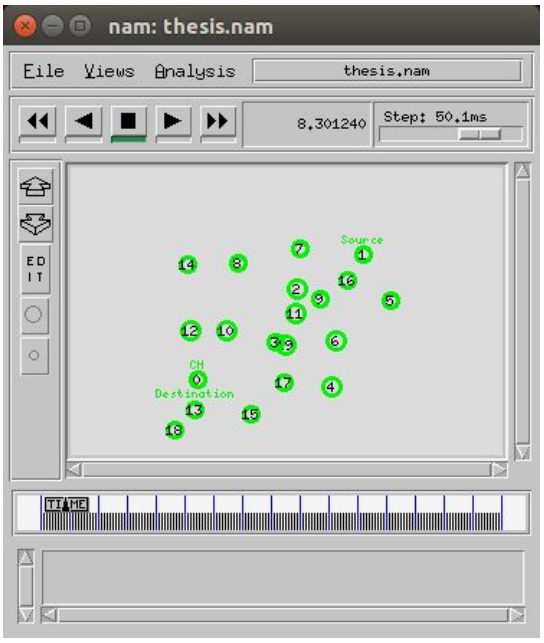
The illustrates the design of mobile adhoc network that consists of 3 mobile nodes. The movements of mobile nodes are confined to an area of 500mX500m with the pause time of 3s. Data transmission is established between nodes using UDP agent and CBR traffic. These intermediate routers forward the packets generated by other nodes to their destination.

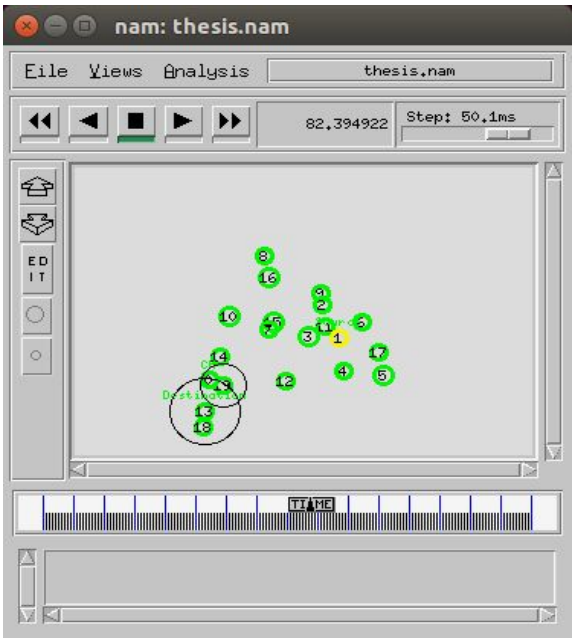
Unlike infrastructure based wireless networks, a mobile ad hoc network or MANET does not depend on a fixed infrastructure for its networking operation. MANET is an autonomous and short-lived association of group of mobile nodes that communicate with each other over wireless links. A node can directly communicate to the nodes that lie within its communication range. If a node wants to communicate with a node that is not directly within its communication range, it uses intermediate nodes as routers.

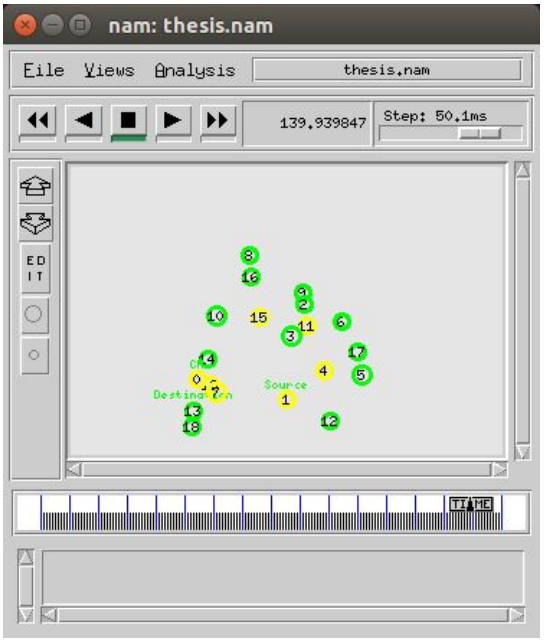
Procedure/ Algorithm :

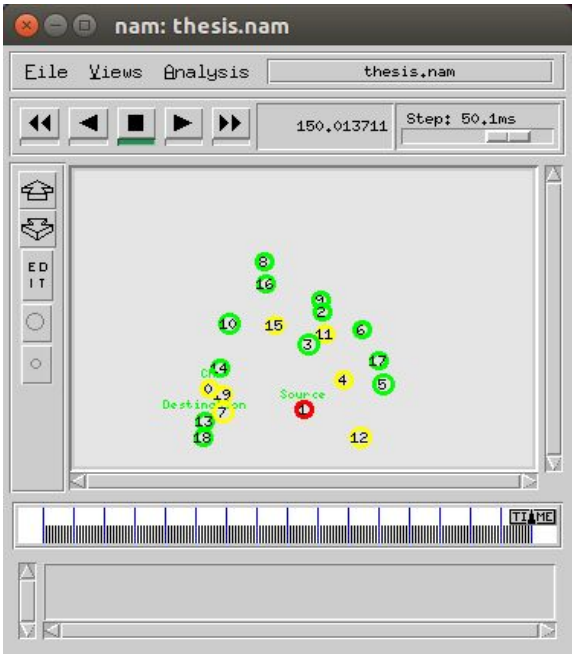
```
cris@cris-VirtualBox:~/ns2$ cd Exp\ 5\ \ Manet/
cris@cris-VirtualBox:~/ns2/Exp 5  Manet$ ls
manet.tcl  thesis.nam  thesis.tr
cris@cris-VirtualBox:~/ns2/Exp 5  Manet$ ns manet.tcl
num_nodes is set 20
warning: Please use -channel as shown in tcl/ex/wireless-mitf.tcl
INITIALIZE THE LIST xListHead
channel.cc:sendUp - Calc highestAntennaZ_ and distCST_
highestAntennaZ_ = 1.5,  distCST_ = 550.0
SORTING LISTS ...DONE!
end simulation
```

Results :









References :

1. Tutorial for ns2
https://www.isi.edu/nsnam/ns/tutorial/ns.html