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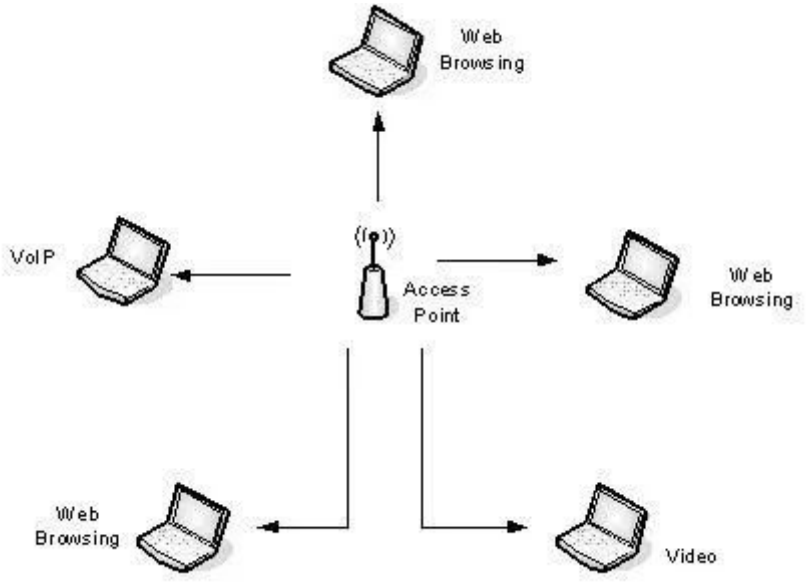
Experiment No 3

Title :
Simulation of Wireless network using ns2

Theory :
The wireless networking model can be created using Tool Command Language (TCL) script with fixed number of nodes. The sample code discussed below models the wireless network with 2 nodes. 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. The wireless network with 2 nodes can be viewed in the Network Animator (NAM) window after executing the file



The wireless network can be created in NS2 using the components of a mobile node and its configurations in every layer. Nodes can be deployed either randomly or in a deterministic manner in flat-grid network space. Mobility model of the nodes can be created and integrated in the simulation. Data communication between nodes can be configured with transport and application layer agents that are required to be attached to both sender and receiver nodes. Different types of wireless networks such as Mobile ad hoc Network (MANET), Vehicular ad hoc Network (VANET), Wireless Sensor Network (WSN), Cognitive Radio Network (CRN), Wireless Mesh Network, Cellular network, and Heterogeneous network can be simulated subjective to their own protocol specifications and configurations.

Procedure/ Algorithm :

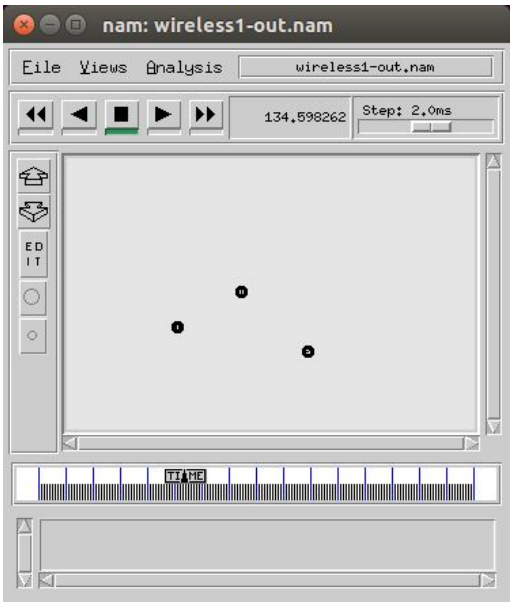
```
cris@cris-VirtualBox:~/ns2$ cd Exp\ 3\ Wireless\ Scripts/
cris@cris-VirtualBox:~/ns2/Exp 3 Wireless Scripts$ ls
simple.tr           wireless1-out.nam  wireless1.tcl
simple-wireless.tcl  wireless1-out.tr
```

Results :

```
cris@cris-VirtualBox:~/ns2/Exp 3 Wireless Scripts$ ns simple-wireless.tcl
```

```
num_nodes is set 2
warning: Please use -channel as shown in tcl/ex/wireless-mitf.tcl
INITIALIZE THE LIST xListHead
Starting Simulation...
channel.cc:sendUp - Calc highestAntennaZ_ and distCST_
highestAntennaZ_ = 1.5,  distCST_ = 550.0
SORTING LISTS ...DONE!
NS EXITING...

cris@cris-VirtualBox:~/ns2/Exp 3 Wireless Scripts$ ns
wireless1.tcl
num_nodes is set 3
warning: Please use -channel as shown in tcl/ex/wireless-mitf.tcl
INITIALIZE THE LIST xListHead
Loading connection pattern...
Loading scenario file...
Starting Simulation...
channel.cc:sendUp - Calc highestAntennaZ_ and distCST_
highestAntennaZ_ = 1.5,  distCST_ = 550.0
SORTING LISTS ...DONE!
NS EXITING...
```



References :

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