Experiment – 2

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Aim – Introduction to discrete event simulation and installation of network simulator 3

Theory – Discrete event simulation (DES) is a computer based simulation method which is particularly effective for modelling the performance of system which are driven by activities occurring at discrete event in time

A discrete event simulation (DES) models the operation of a system as a (discrete) sequence of event in time. Each event occurs at a particular instant in time and marks a change of state in the system. Between consecutive events, no change in system is assumed to occur; thus the simulation time can directly jump to occurances time of next level, which is called next event time progression

In addition to next event time progression, there is also an alternative approach, called fixed – increment time progression.

NS 3

NS-3 is a discrete event network simulator for internet systems, targeted primarily for research and

educational use. NS-3 is free software, licensed under the GNU GPL v2 license, and is publicly available for research, development use.

NS 3 is a tool used for simulating the real world network on one computer by writing script in C++ / Python. Naturally, if we want to perform experiments, to see how our network works using various parameters. We don't have required number of computers and routers for making different topology.

Ns 3 gives special features —

1. Tracing of Nodes
2. Net Anim
3. Pcap Fill
4. Gnu plot

Installing NS3 in Ubuntu 20.04

(1) Install the ns3 dependencies.

sudo apt-get install build-essential autoconf automake libxmu-dev python-pygoocanvas python-pygraphviz cvs mercurial bzr git cmake p7zip-full python-matplotlib python-tk python-dev python-kiwi python-gnome2 python-gnome2-desktop-dev python-rsvg qt4-dev-tools qt4-qmake qt4-default gnuplot-x11

(2) Download ns3 package from nsnam.org

(3) Go to location of download and copy the file to home folder and give the comm

tar jxvf ns-allinone-3.27.tar.bz2

cd ns-allinone-3.27/

./build.py --enable-examples --enable-test

We will see a screen like this

Result - Installation of ns3 performed successfully

```
Modules built:
antenna                  aodv                     applications
bridge                   buildings                config-store
core                     csma                     csma-layout
dsdv                     dsr                      energy
fd-net-device            flow-monitor             internet
internet-apps            lr-wpan                  lte
mesh                     mobility                 mpi
netanim (no Python)      network                  nix-vector-routing
olsr                     point-to-point           point-to-point-layout
propagation              sixlowpan                spectrum
stats                    tap-bridge               test (no Python)
topology-read            traffic-control          uan
virtual-net-device       visualizer               wave
wifi                     wimax

Modules not built (see ns-3 tutorial for explanation):
brite                    click                    openflow
```