EXPERIMENT NO. 5

SEMESTER: V   DATE OF PERFORMANCE: 28th August 2024

SUBJECT: CN Lab   DATE OF SUBMISSION: 01st September 2024

NAME OF THE STUDENT: Dwayne George Nixon   ROLL NO.: 21

AIM	Study a simulation tool like NS2 to understand how network simulation tools function.
LEARNING OBJECTIVE	The student will understand the basics of tool NS2 and NAM animation tool.
LEARNING OUTCOME	The Students will be able to study set up of an NS2 Simulator and functions of packet tracer.
COURSE OUTCOME	**CSL 502.2:** Gather information regarding network simulator tool e.g. NS2 and summarize its usage
PROGRAM OUTCOME	PO1,PO2,PO3,PO4,PO5,PO9,PO10,PSO1,PSO2,PSO3
BLOOM'S TAXONOMY LEVEL	Understand
THEORY	NS2 is an open-source simulation tool that runs on Linux. It is a discrete eventsimulator targeted at networking research and provides substantial support for simulation of routing, multicast protocols and IP protocols, such as UDP, TCP, RTP and SRM over wired and wireless (local and satellite) networks. Namis a Tcl/TK based animation tool for viewing network simulation traces and real world packet traces. It supports topology layout, packet level animation, and various data inspection tools. Ns began as a variant of the REAL network simulator in 1989 and has evolved substantially over the past few years. In 1995 ns development was supported by DARPA through the VINT project at LBL, Xerox PARC, UCB, and USC/ISI. Currently ns development is support through DARPA with SAMAN and through NSF with CONSER, both in collaboration with other researchers including ACIRI. Ns has always included substantal contributions from other researchers, including wireless code from the UCB Daedelus and CMU Monarch projects and Sun Microsystems. For documentation on recent changes, see the version 2 change log.

NS can be downloaded from the ns web site
at http://www.isi.edu/nsnam/ns/ns.html and the download
page http://www.isi.edu/nsnam/ns/ns-tests.html.

NS supports amost all variants of TCP, several forms of multicast, wired networking,
several ad hoc routing protocols and propagation models (but not cellular phones),
data diffusion, satellite, and other stuff. See the documentation (described above) for
details, or download ns and look.

What's Nam

Nam is a Tcl/TK based animation tool for viewing network simulation traces and real world packet
traces. It supports topology layout, packet level animation, and various data inspection tools.
Nam began at LBL. It has evolved substantially over the past few years. The nam development
effort was an ongoing collaboration with the VINT project.
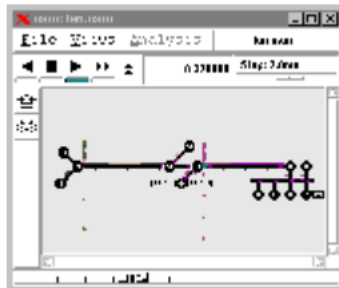
What can you do with these tools:

Create:

- Terrestrial, satellite and wireless networks with various routing algorithms
  (DV, LS, PIM-DM, PIM-SM, AODV, DSR).
- Traffic sources like web, ftp, telnet, cbr, stochastic traffic.
- Failures, including deterministic, probabilistic loss, link failure, etc.
- Various queuing disciplines (drop-tail, RED, FQ, SFQ, DRR, etc.) and QoS
  (e.g., IntServ and Diffserv).

	Visualize: • Packet flow, queue build up and packet drops. • Protocol behavior: TCP slow start, self-clocking, congestion control, fast retransmit and recovery. • Node movement in wireless networks. • Annotations to highlight important events. • ☐ Protocol state (e.g., TCP cwnd).
LAB EXERCISE	Every student will understand the network simulation.
REFERENCES	● B.A. Forouzan, "Data Communications and Networking", TMH, FourthEdition. ● https://www.youtube.com/playlist?list=PLbu9W4c-C0iChBaAUcl5Bvne4oCPTC7hO