

## WMS Assignment 2

\* Aim:

Write a program to stimulate two nodes wireless network. You may use Natsim or NS2 or QualNet for this experiment.

\* conclusion:

Thus, we studied, install and configure NS2 on Ubuntu.

\* FAQ's :-

1. Distinguish between emulation and simulation with example.

⇒ simulation

Emulation

1] Decision making happens instantly.

1] Decision making happens after a series of steps of which each step takes a certain amount of time.

2] The model is repeatable. The logic is built in the model and the model has its own simulation clock.

2] The model is not repeatable. The logic and clock of the control system are separate from the model itself.

3] Used to test and develop different solutions to demonstrate functionality and result in cost effectiveness.

3] Used to test the operation of the control system under different system conditions and for training operations and maintained staff.



4] Focus on high speed to get output results quickly faster than emulation.

4] Focus on imitating the real world by using real time in model.

5] More approximations

5] Model and calculations are more accurate

Ex:- Movement of a conveyor in a model occurs directly after the calculation are performed.

Ex:- Movement of a conveyor in a model occurs after: bar codes has been scanned. the information has been scanned, the information has been sent to system, control system has verified the movements and electric motor has received a signal to move conveyor

→ Software Simulator

- Ships bridge simulator
- Engine Room simulator

→ Software Emulator

- Android emulator (BlueStacks)
- PSX (Playstation)

Q2. Compare Compiler and interpreter.



## Compiler

1. compiler takes entire program as input

2. Intermediate object code is Generated.

3. Conditional control statement executes faster.

4. Memory Requirement: More.

5. Errors are displayed after entire program is checked

ex: C compiler

## Interpreter

Interpreter takes single instruction as input.

No intermediate object code is generated.

conditional control statement executes slower.

Memory Requirement: Less.

Errors are displayed for every instruction interpreted

ex BASIC

Q3 List the different simulation tools and compare it with network simulator-2 (NS-2)

⇒ Simulation tools :-

1. Omnet ++

2. Opnet

3. NETSIM



	NS2	omnet++	Opnet	NETSIM
→ Type of Software	open source	Free Paid (for commercial)	Proprietary	Proprietary
→ Platform Supported	Supports Linux, windows, OSX.	Linux, windows, os, OSX	windows, Red Hat	windows
→ Features	Support basic WSN support, protocols, Best for small network	WSN support, consumes less memory, Easy to use	Fast, communicating with other simulator.	Updated set of Libraries, seamless interface, with external tools (C++, SUMO)
→ Language Supported	C++ / OTCL	C++	C (C++)	GUI based C supported

Q4 Why two language OTCL and C++ used by NS2?

⇒ In NS2, C++ is used for detailed protocol implementation and OTCL is used for the setup. The compilers C++ objects are made available to the OTCL interpreter and in this way, the ready-made C++ objects can be controlled from the OTCL level.



Q5 What are advantages and disadvantages of NS 2

⇒ Advantages

i) Easy to add new protocols

ii] Modular approach

iii] A large number of protocols available publicly.

Disadvantages

i) Support only two wireless MAC Protocols, 802.11 and a single-hop TDMA protocol.

ii] Need to familiar with writing scripting language.

Q6 Draw and Explain three kinds of formats for wired networks in NS-2.

⇒ NS-2 provides :-

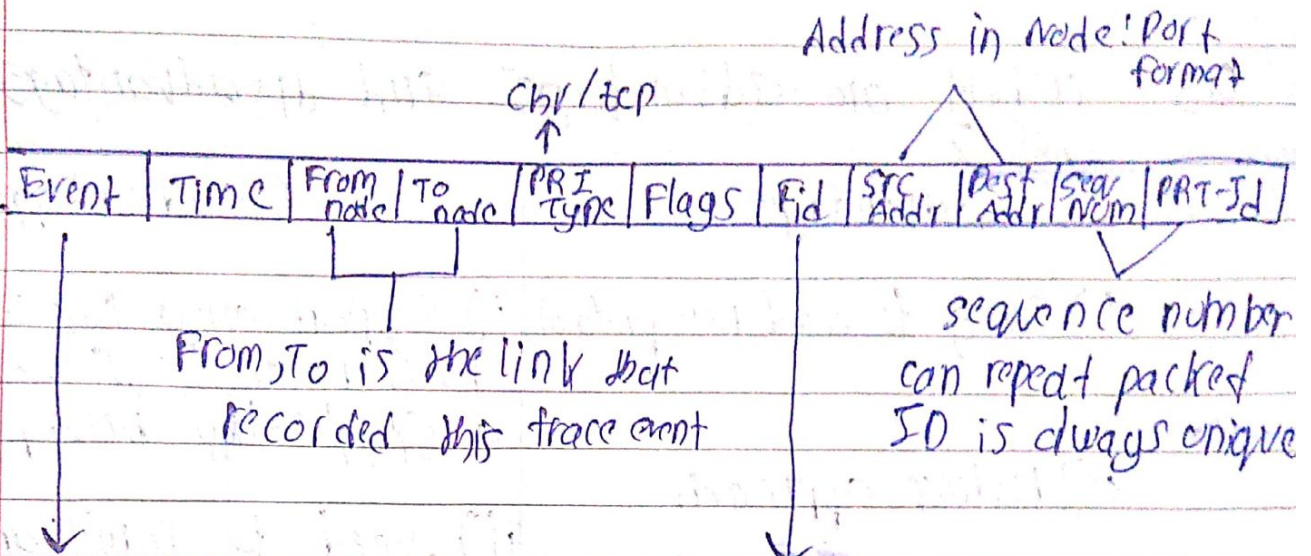
1] Tracing

2] Monitoring

3] NAM trace files format

Tracing and monitoring represents the only support for data collection in NS2. It records events related to the generation, enqueueing, forwarding, and dropping of packets. Each event corresponds to a line of ASCII characters, which contain a information on the event type and information stored in the packet.





+ → enqueue

- → dequeue

r → recvd (at o/p of link)

d → dropped

User can set flow

id in a Tcl script for

each source

- NS2 currently supports a number of different types of trace files. In addition to its own format, NS2 also has the NAM trace format, which contains the necessary information from the simulation to drive the NAM visualizer. Both of these trace formats are very specific when it comes to giving details about the events that occur during an NS2 simulation.