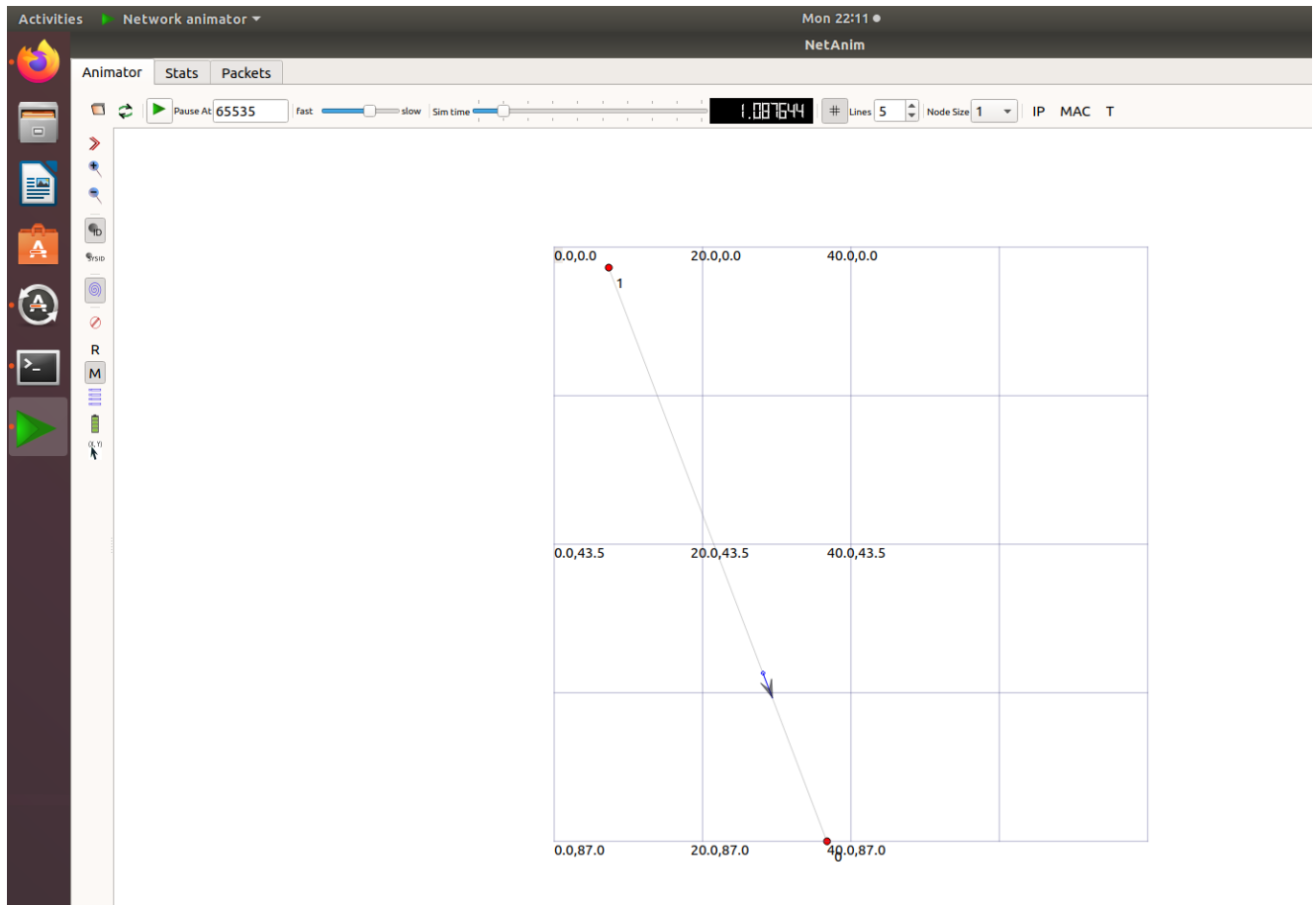


NetAnim:

Tracemetrics:

The top screenshot shows the Tracemetrics application window with the 'Details' tab selected. It displays the following summary statistics:

File:	/home/ubuntu/ns-allinone-3.34/ns-3.34/Assignment5.tr
Lines on file:	9108
Total enqueued packets:	3036
Total sent packets:	3036
Total received packets:	3025
Total dropped packets:	11
Total simulation time:	9.3176 seconds
Time of analysis:	3s

The bottom screenshot shows the Tracemetrics application window with the 'Throughput / Goodput' tab selected. It displays a table with the following data:

Node	Throughput	Goodput
0	123892.2040010303	112225.46578518073
1	5963.552846226496	0.0

The screenshot shows a Linux desktop environment with the following components:

- Terminal Window:** Displays the command sequence to run the application:

```
ubuntu@linux-VirtualBox: ~/tracemetrics-1.4.0
File Edit View Search Terminal Help
ubuntu@linux-VirtualBox:~/ns-allinnone-3.34/ns-3.34/scratch$ cd ../../netanim-3.108/
ubuntu@linux-VirtualBox:~/ns-allinnone-3.34/netanim-3.108$ ./NetAnim
Gtk-Message: 22:10:03.168: GtkDialog mapped without a transient parent. This is discouraged.
ubuntu@linux-VirtualBox:~/ns-allinnone-3.34/netanim-3.108$ cd ../../tracemetrics-1.4.0/
ubuntu@linux-VirtualBox:~/tracemetrics-1.4.0$ java -jar "tracemetrics.jar"
TCP size: 2
Stream 1
[TcpStreamNode{seqNumber=1, time=9.3155, yload=0, ack=1040001, signature=Ipv4Header, 1022 protocol 6 offset (bytes) 0 flags 0, TcpHeader (8080 > 49153 [ACK] Seq=1 Ack=11) TcpOptionEnd (EOL))}]
Stream 2
[]
```
- TraceMetrics GUI:** A window titled "TraceMetrics - a trace analyzer for Network Simulator 3". It has tabs for Simulation, Nodes, Throughput / Goodput, Little's Result, and Streams. The "Nodes" tab is selected, showing a table of simulation results for two nodes.

Node	Lambda	E[W]	E[N]	E[W] * Lambda
0	216.042757791708	4.6484848484527056E-4	0.10042714862196281	0.10042714862126831
1	109.7922211728342	0.0	0.0	0.0

The "Streams" tab is also visible, showing details for two streams:

- Stream 0:** 10.1.1.2 --> 10.1.1.1, Ports: 8080 --> 49153, Number of packets: 1022, Average Delay: 0.0020811252446183933, Delay variance: 1.8810938970517845E-11, Average PDV: 1.125244618977577E-6, PDV variance: 1.879253296369716E-11, Average IPDV: -1.9588638590181305E-8, IPDV variance: 8.422730878866849E-12.
- Stream 1:** 10.1.1.1 --> 10.1.1.2, Ports: 49153 --> 8080, Number of packets: 2002, Average Delay: 0.0029191308691308674.

Wireshark:

The image displays the Wireshark network traffic analysis interface. The top menu bar includes File, Edit, View, Go, Capture, Analyze, Statistics, Telephony, Wireless, Tools, and Help. The toolbar contains icons for various functions like opening files, capturing, and analyzing. The main display area is divided into three panes:

- Packet List Pane:** Shows a list of captured packets. The first packet (No. 1) is selected, showing details of an ACK segment from 10.1.1.1 to 10.1.1.2 on port 8080.
- Packet Details Pane:** Provides a hierarchical view of the selected packet's structure, including Ethernet II, Internet Protocol Version 4, and Transmission Control Protocol.
- Packet Bytes Pane:** Displays the raw data of the selected packet in hexadecimal and ASCII format.

The status bar at the bottom indicates that 11 packets are displayed (100.0%).

GNUPlot:

