EXERCISE 4: Multi-Hop WAN with Fault Tolerance
Interpretation:

Traffic flows:

Branch → DC-A → DC-B

Backup link:

DC-A ↔ DC-B

Explanation

This exercise focuses on fault tolerance in a multi-hop WAN network. The objective is to observe how the network behaves when a critical link or router fails while traffic is flowing through multiple hops.

In this exercise, communication passes through more than one intermediate node. A failure is intentionally introduced on a main link to see whether traffic can still reach its destination. This helps demonstrate the difference between static routing, which does not automatically adapt to failures, and dynamic routing, which can find new paths.

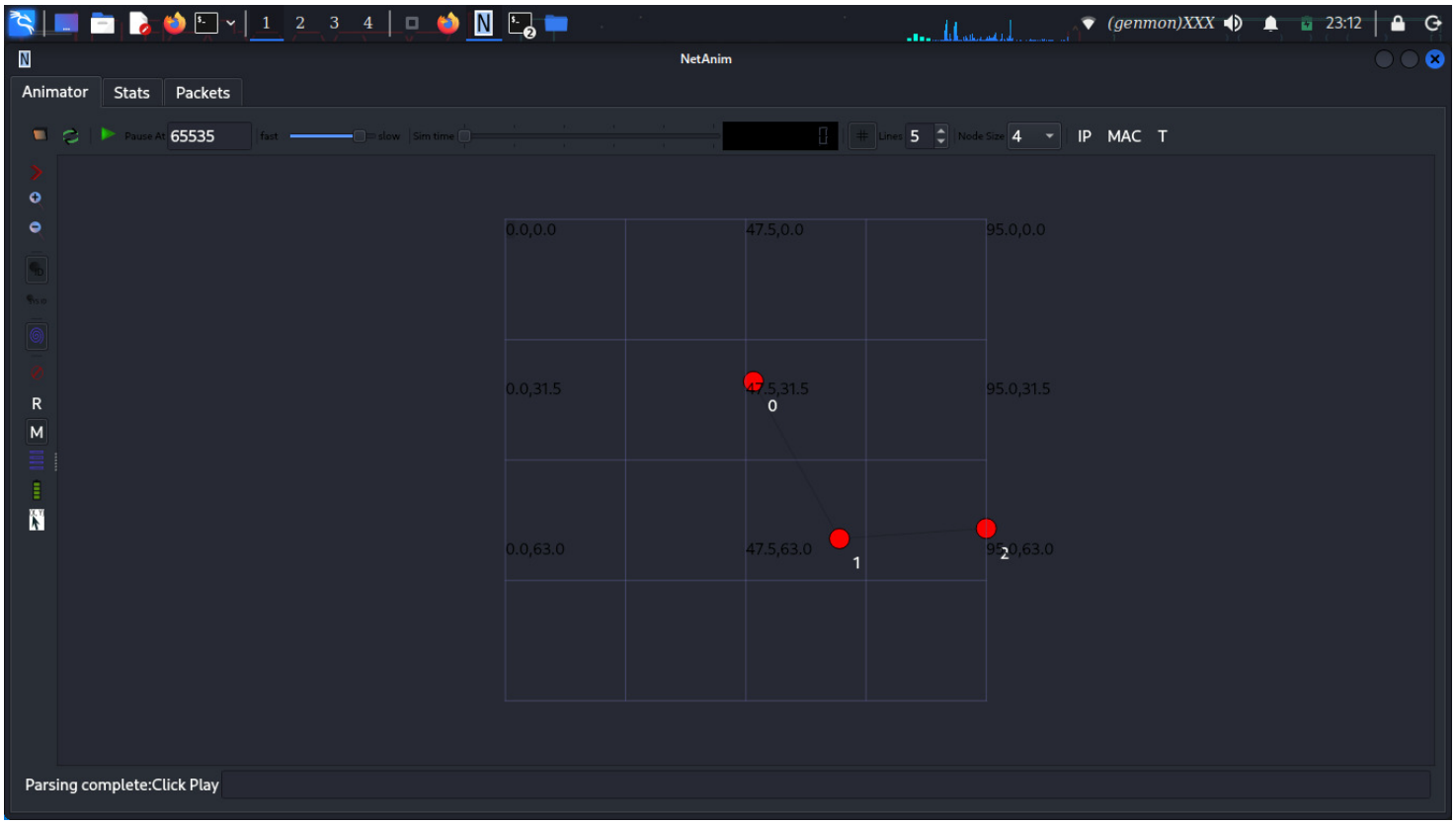
The exercise shows that without adaptive routing, network communication can stop after a failure. It emphasizes the importance of fault-tolerant design and the use of dynamic routing protocols in large or critical networks.

Failure Simulation:

```
Simulator::Schedule(Seconds(5.0),
 &Ipv4::SetDown, ipv4, interfaceIndex);
```

Result:

- Static routing → traffic stops
- Dynamic routing → reconverges


NetAnim
Animator
Stats
Packets
Pause At 65535
fast
slow
Sim time
Lines 5
Node Size 4
IP
MAC
T
0.0,0.0
47.5,0.0
95.0,0.0
0.0,31.5
47.5,31.5
95.0,31.5
0.0,63.0
47.5,63.0
0
1
2
Parsing complete:Click Play