

COMPUTER NETWORKS LAB (CS315)

Assignment-14

NS-3

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What is NS-3?

- NS-3 is a Network simulator tool.
- It is used for simulating the real world network on one computer by writing scripts in C++ or Python.
- It is free and an open-source software.
- Collection of C++ libraries.
- Used primarily for research and educational use.



NS3 Tools

- gnuplot
- wireshark
- NetAnim
- Trace metrics
- Flow monitor
- Visualizer



Components

- Nodes
- Applications
 - `UdpEchoClientApplication`, `UdpServerEchoApplication`
- Channels
 - `CsmaChannel`, `PointToPointChannel`
- NetDevice: contains software drivers installed in a node and enables it to communicate with other nodes like NIC
 - `CsmaNetDevice`, `PointToPointNetDevice`
- Topology helpers: helps to connect NetDevice to Nodes, NetDevice to Channels, assigning IPs etc.

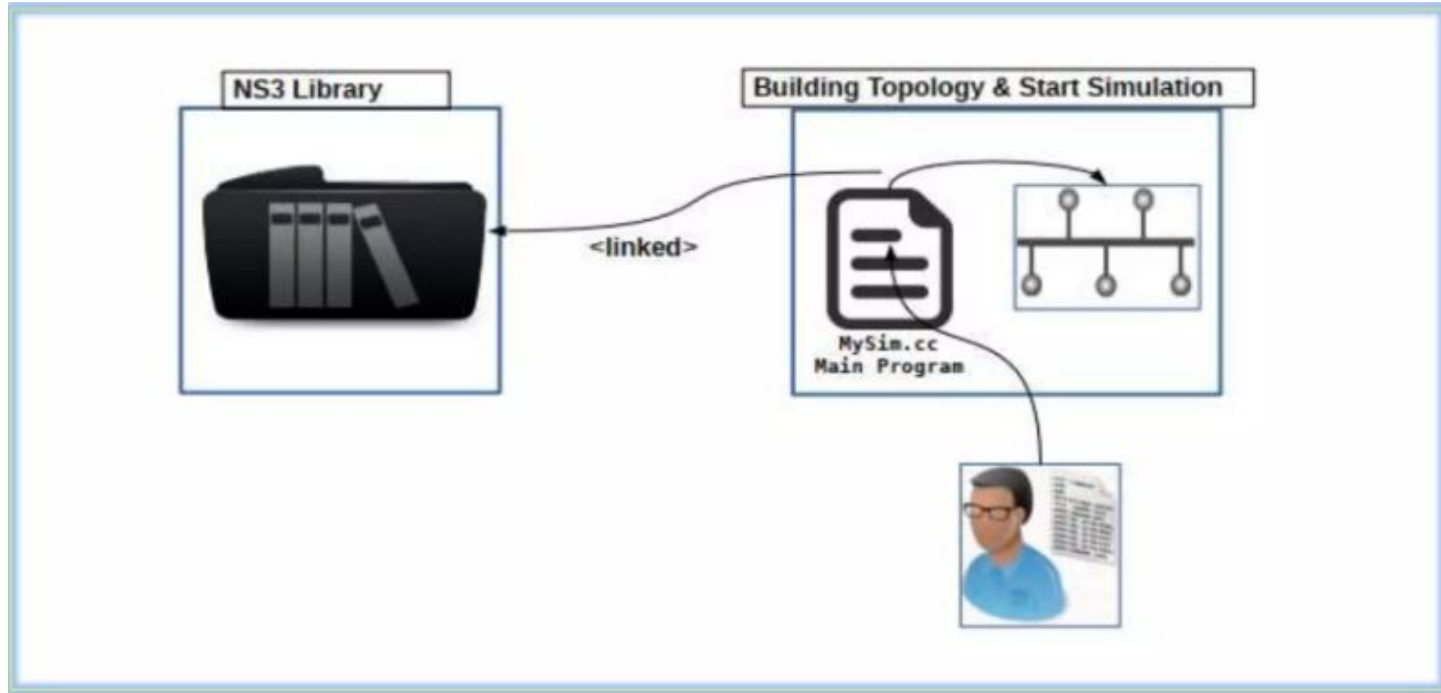


NS-3 Basics

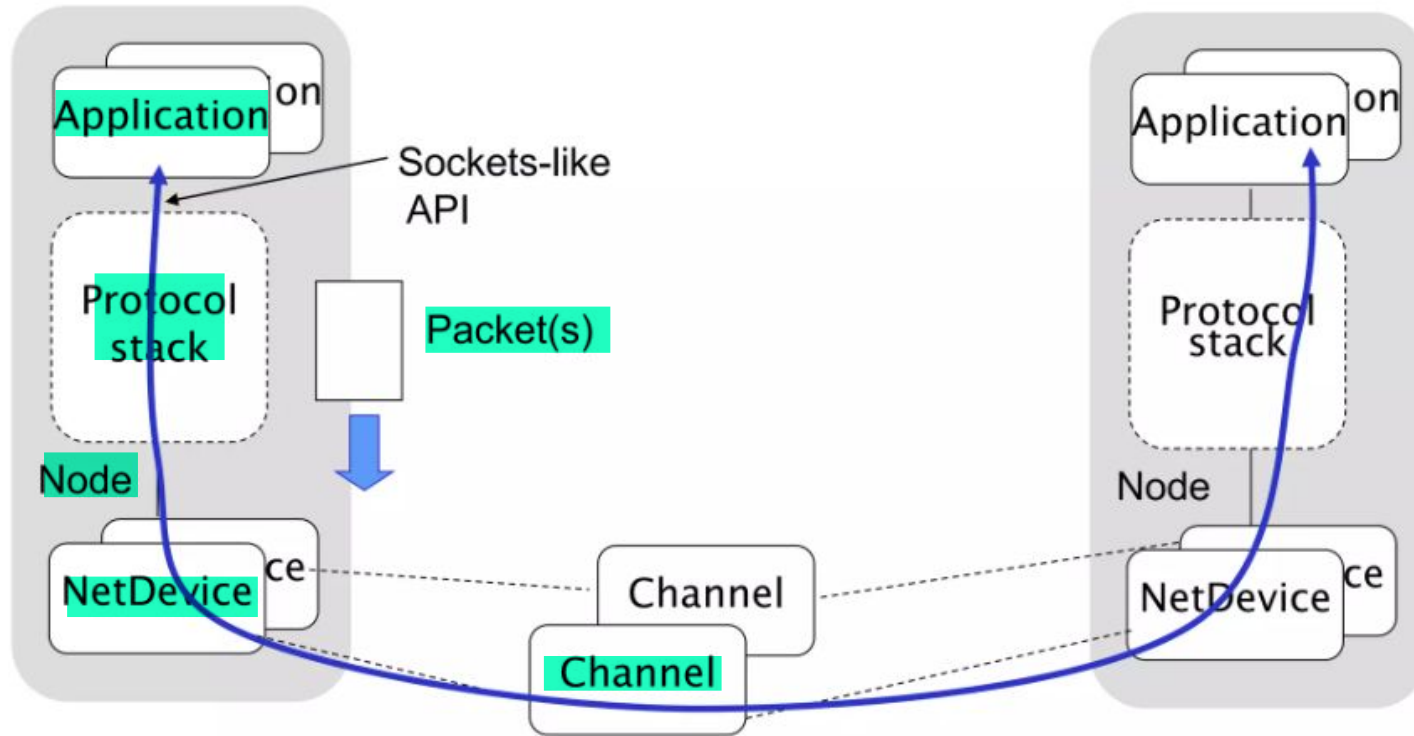
- Create topology
- Create data demand on the network
- Run the simulation
- Visualize the simulated network in **Netanim** tool
- Analyze results
 - Traces (eg: Log every packet receipt, transmit)



Use of Library



Basic NS-3 Flow Model



Thank you