Experiment No: 1	
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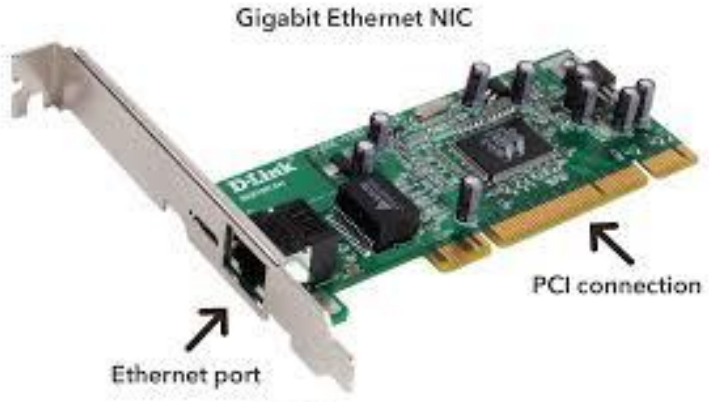
Title	• Study various types of network components. • Introduction to the network simulator tool, Cisco packet tracer
Theory	A computer network is like a bustling city, with information constantly flowing between devices. To ensure smooth communication, various components work together, much like the roads, bridges, and traffic lights that keep a city running. 1. Network Interface Card (NIC): Imagine your NIC as the ID card each device needs to access the network. It's a circuit board installed within your computer that translates data into electrical signals for transmission over the network cable and vice versa.  2. Cables: These are the information highways of your network. They carry electrical signals representing data between devices. Common cable types include Ethernet cables (twisted-pair) for wired connections and fiber optic cables for longer distances and higher bandwidth.

3. Switch:

Think of a switch as a smart traffic director. It receives data packets from one device and intelligently forwards them to the intended recipient on the network. Unlike a hub (an older technology), a switch creates dedicated connections for each device, reducing congestion and improving network efficiency.

4. Router:

The router is the network's decision-maker. It connects different networks (like your home network to the internet) and determines the best path for data packets to reach their final destination. Routers use IP addresses to route traffic efficiently.

5. Modem:

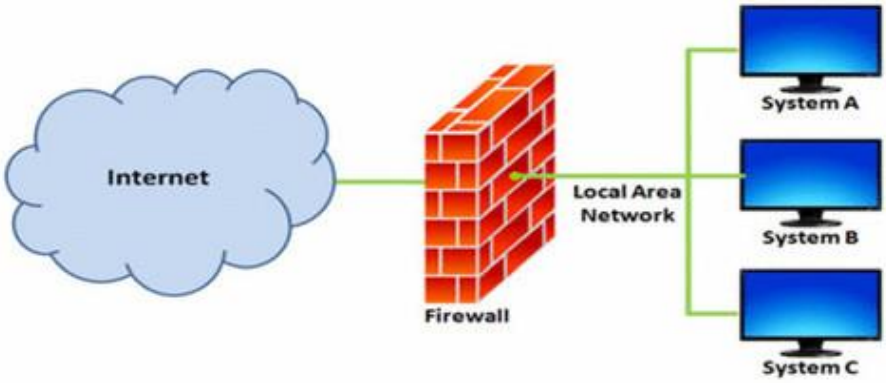
The modem acts as a translator, converting the digital signals from your network into a format suitable for transmission over external lines (like cable or phone lines) and vice versa. It allows your network to communicate with the wider internet.

6. Servers:

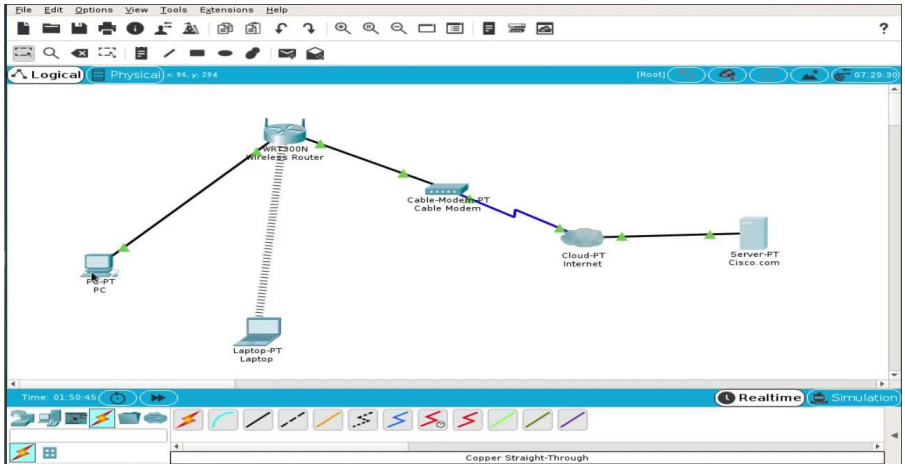
Servers are the central storage points and processing hubs of a network. They provide resources like files, applications, and services to other devices on the network, like clients (your personal computer). There are different types of servers, including web servers, file servers, and email servers.

7. Firewalls:

Think of a firewall as the network's security guard. It monitors incoming and outgoing traffic, filtering out potential threats like malware or unauthorized access attempts, protecting your network from harm.



Output Screenshots



Observation	
Self-assessment Q&A	
Conclusion	This experiment provided a basic understanding of network components and their functions. Cisco Packet Tracer is a valuable tool for visualizing and experimenting with network concepts. Further exploration can be done to study more complex network topologies and protocols.