China Communications

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Chapter 2: Communication Network Structure

Basic Concepts of Communication Network

Define a network

- Data or information networks capable of carrying many different types of communications
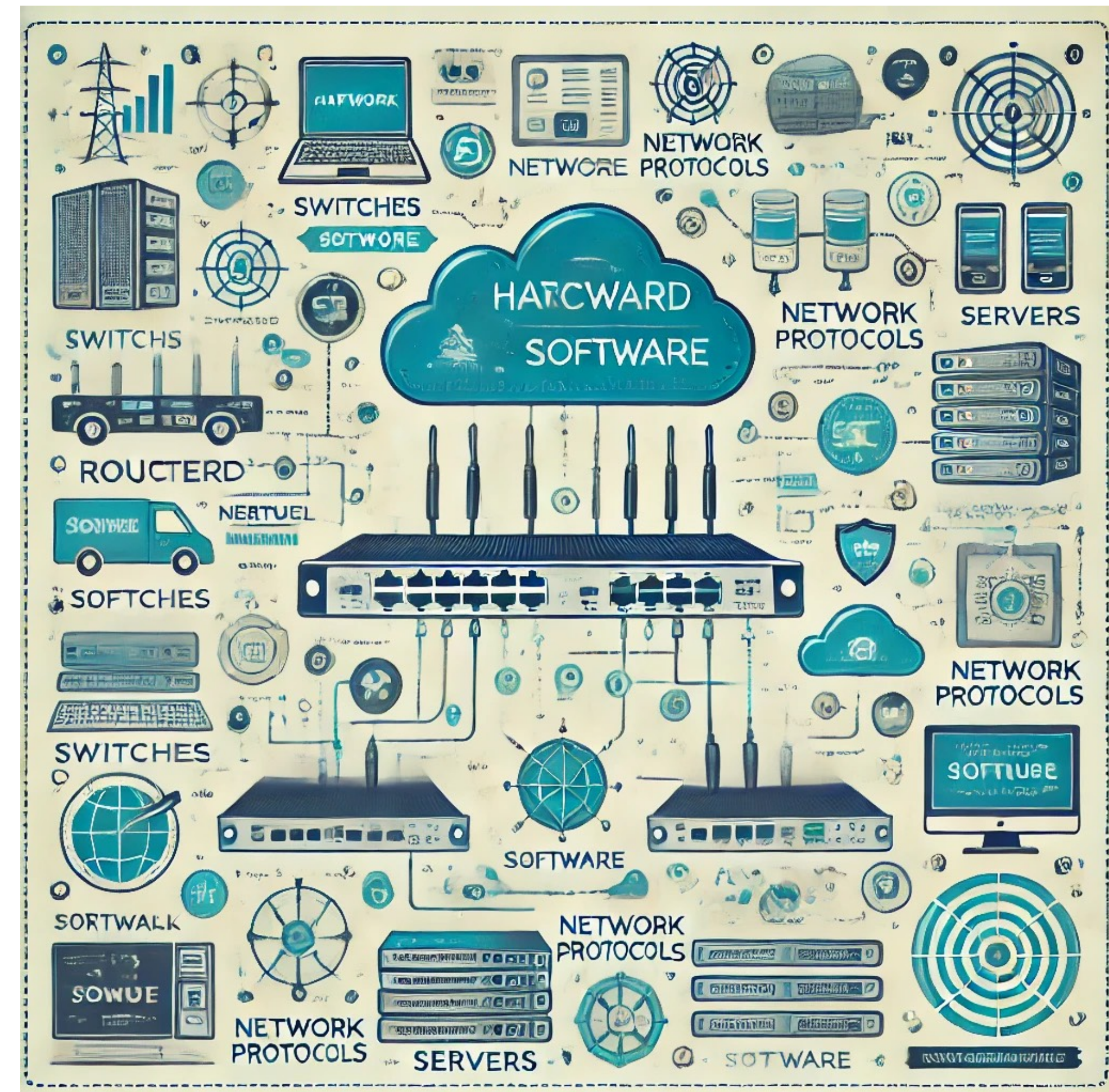
- Key elements:

  - message source

  - the channel

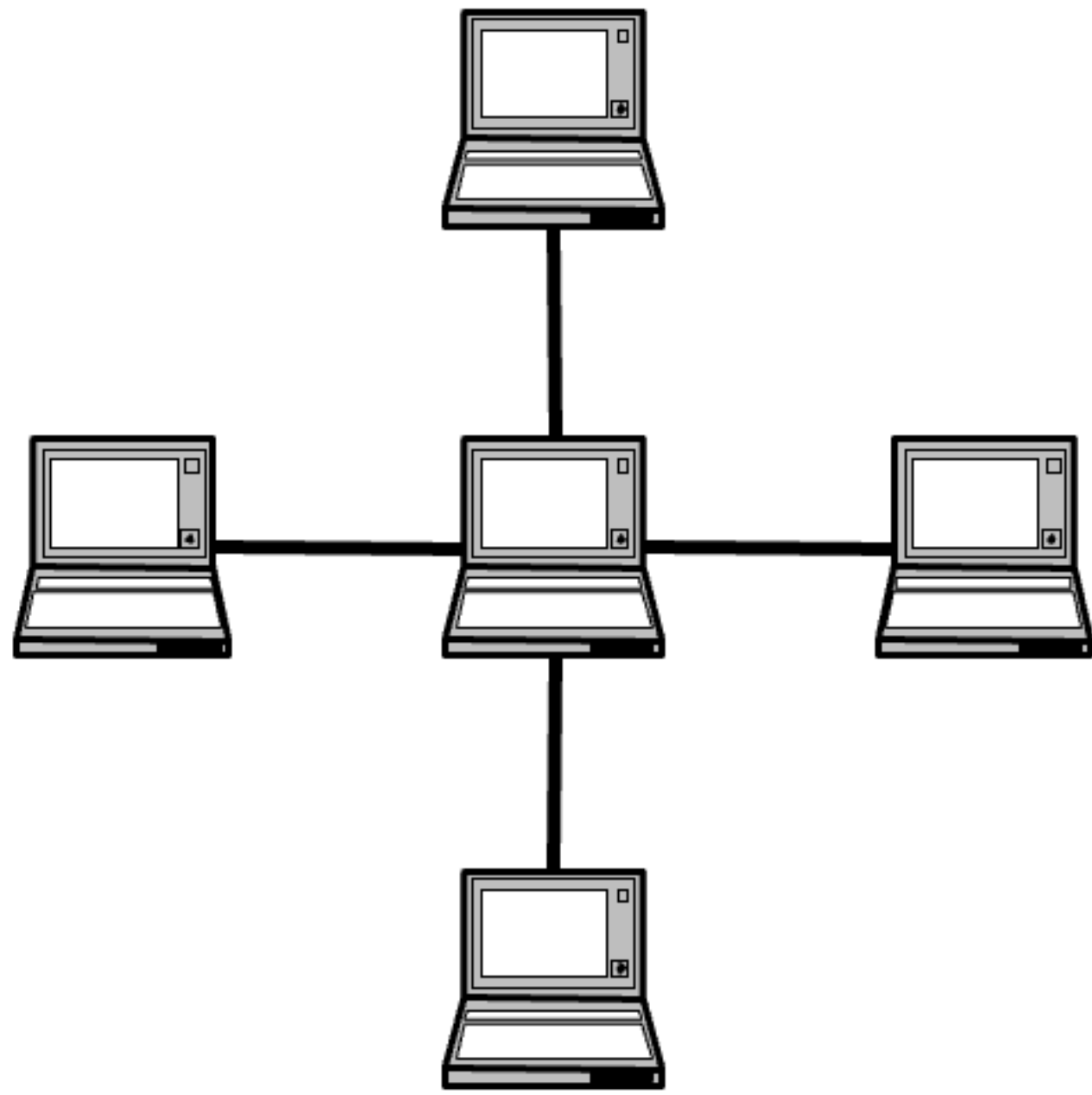 - message destination

Basic Concepts of Communication Network

Components of a network

- Network components:
  - hardware
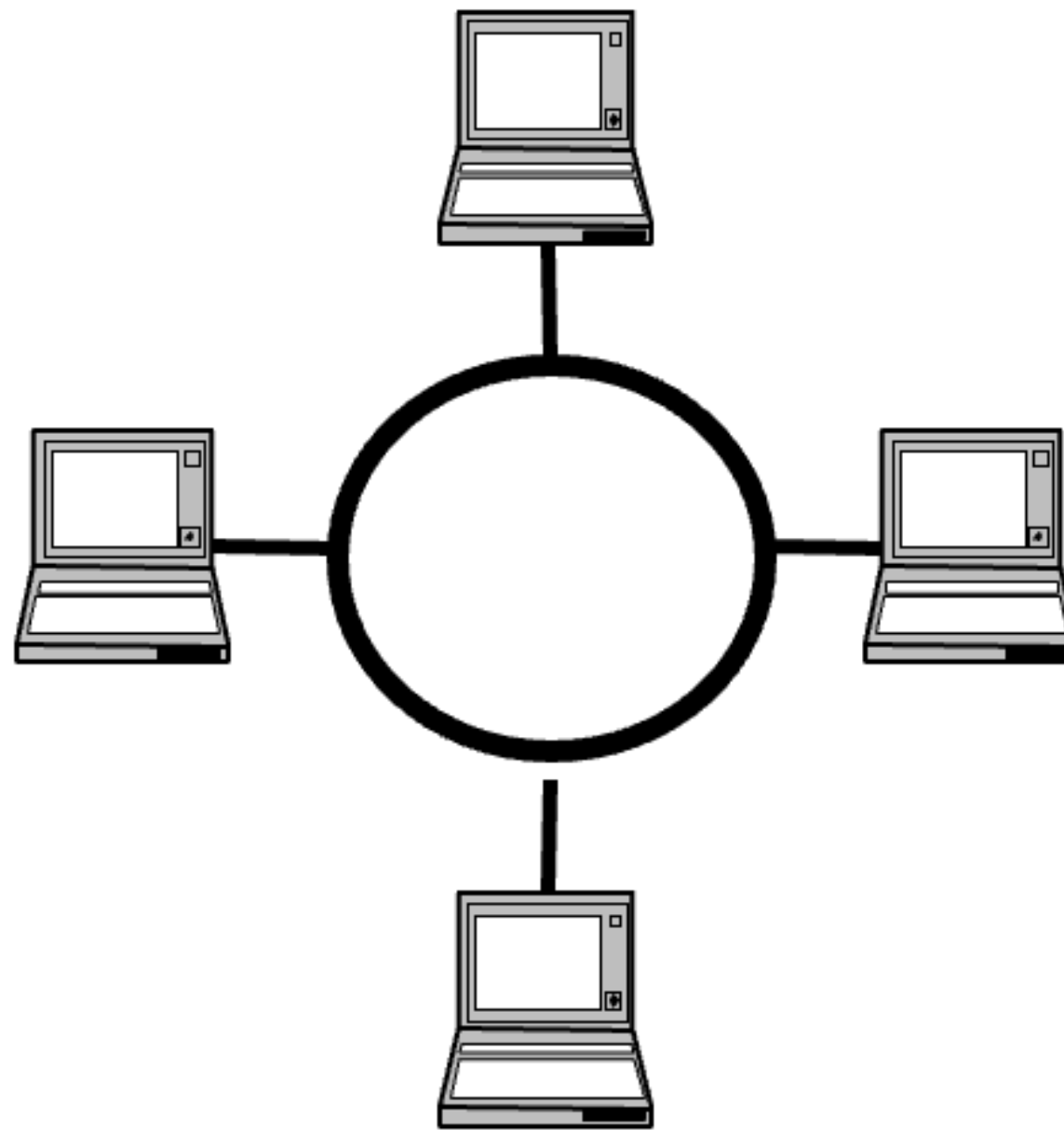   - nodes, links
  - software
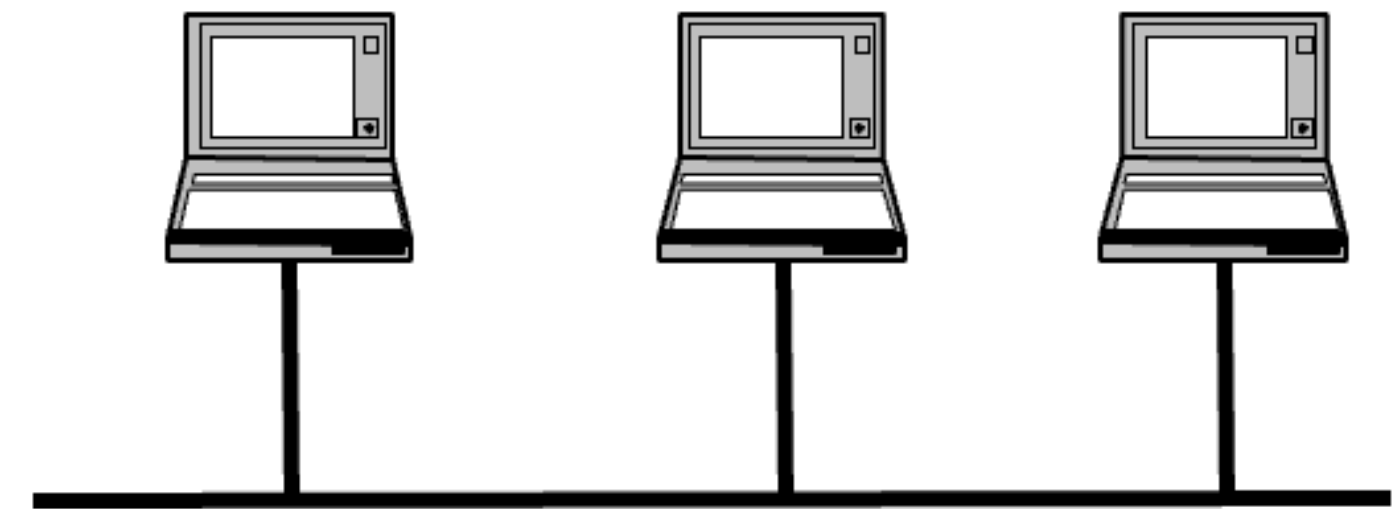 - protocols

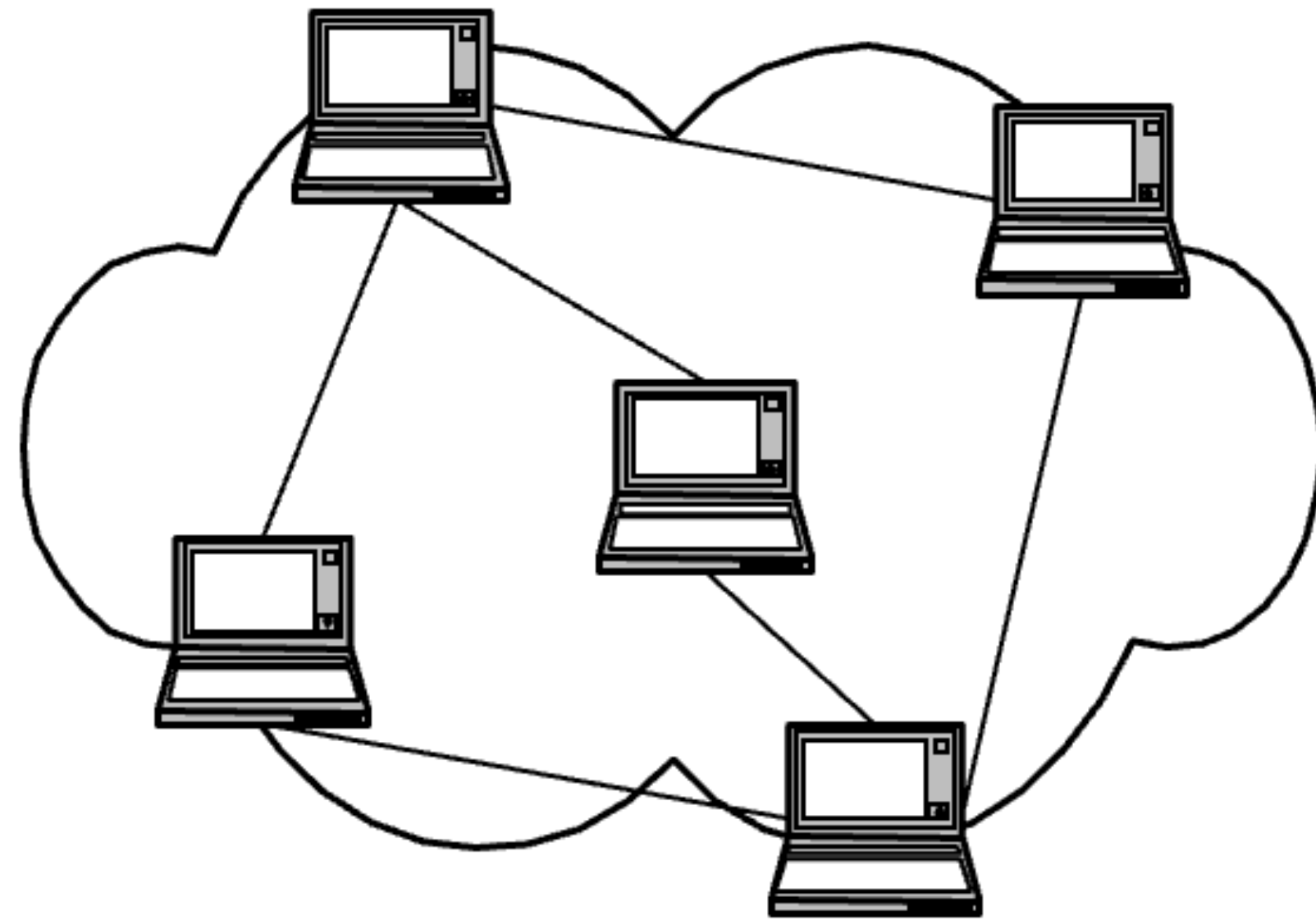# Basic Concepts of Communication Network

Topology

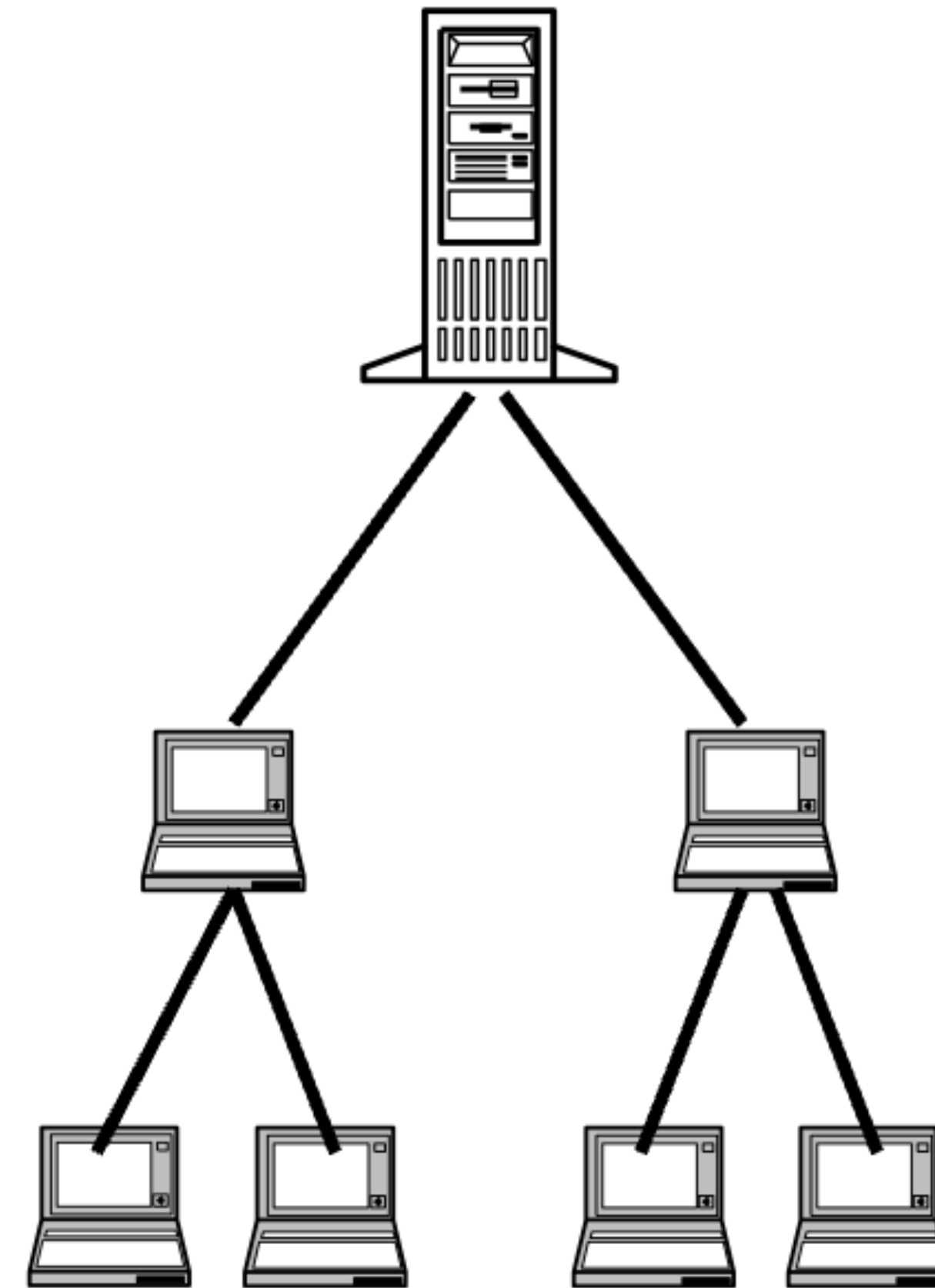Star Topology   Ring Topology   Bus Topology

Basic Concepts of Communication Network
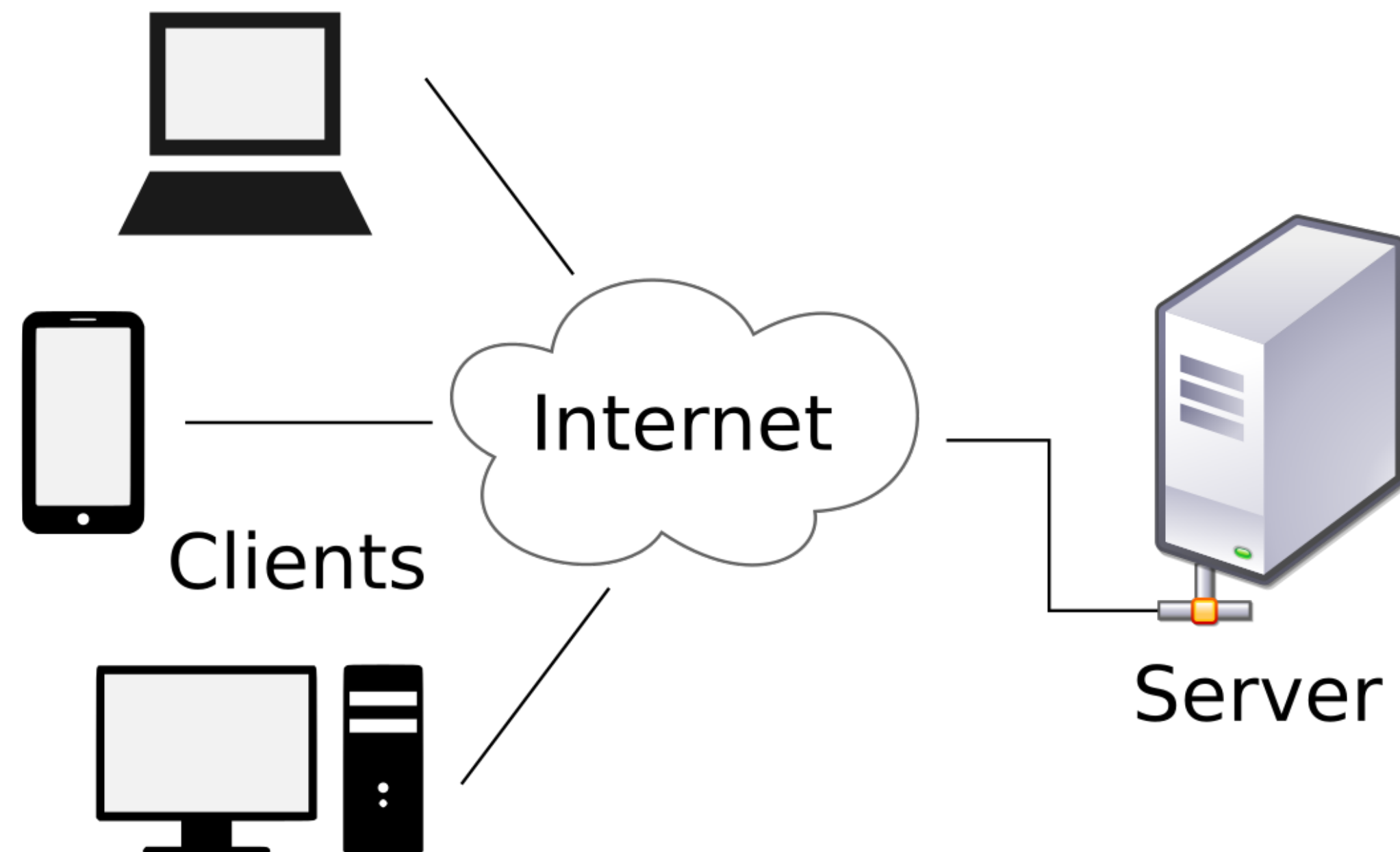## Topology

Mesh Topology

Tree Topology

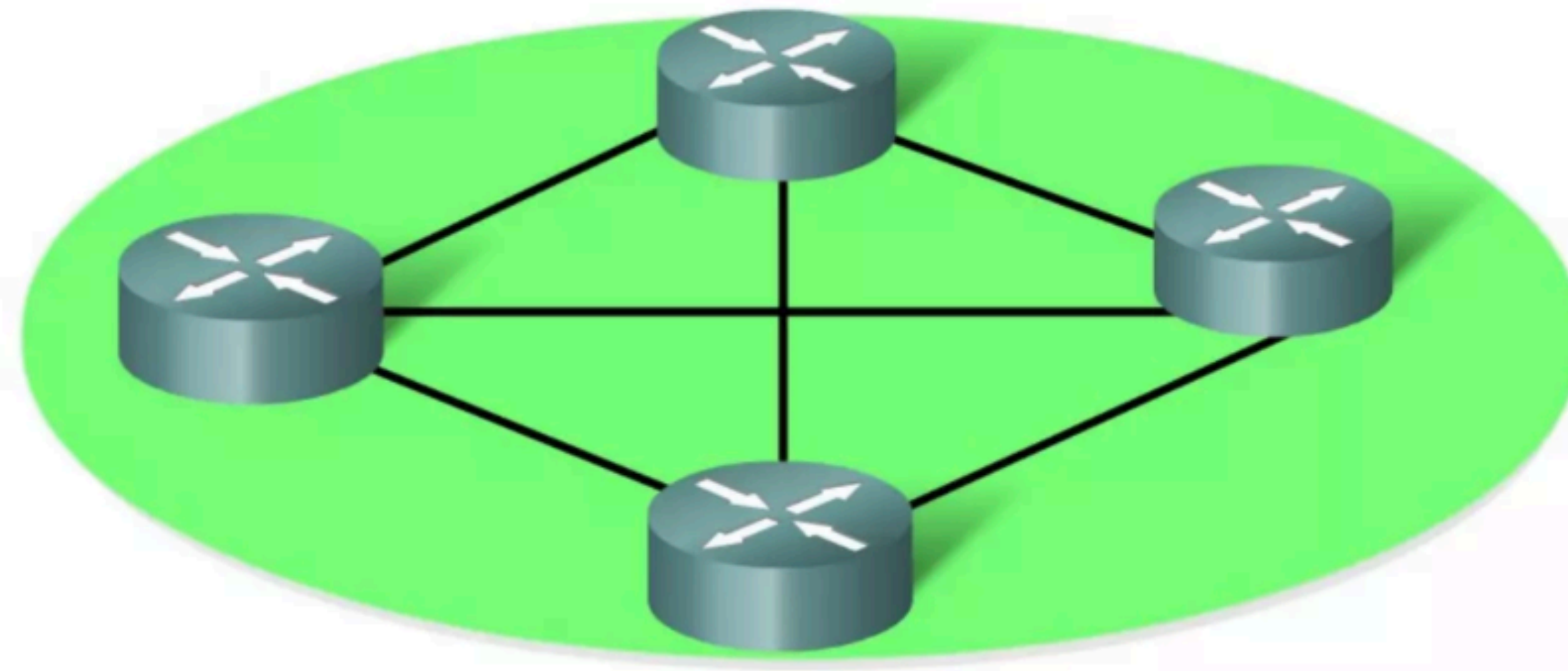# Basic Concepts of Communication Network
End device

- End devices form interface with human network & communications network

- Role of end devices:

  - client

  - server

  - both client and server

Basic Concepts of Communication Network

Intermediate device

- Role of an intermediate device

  - provides connectivity and ensures data flows across network
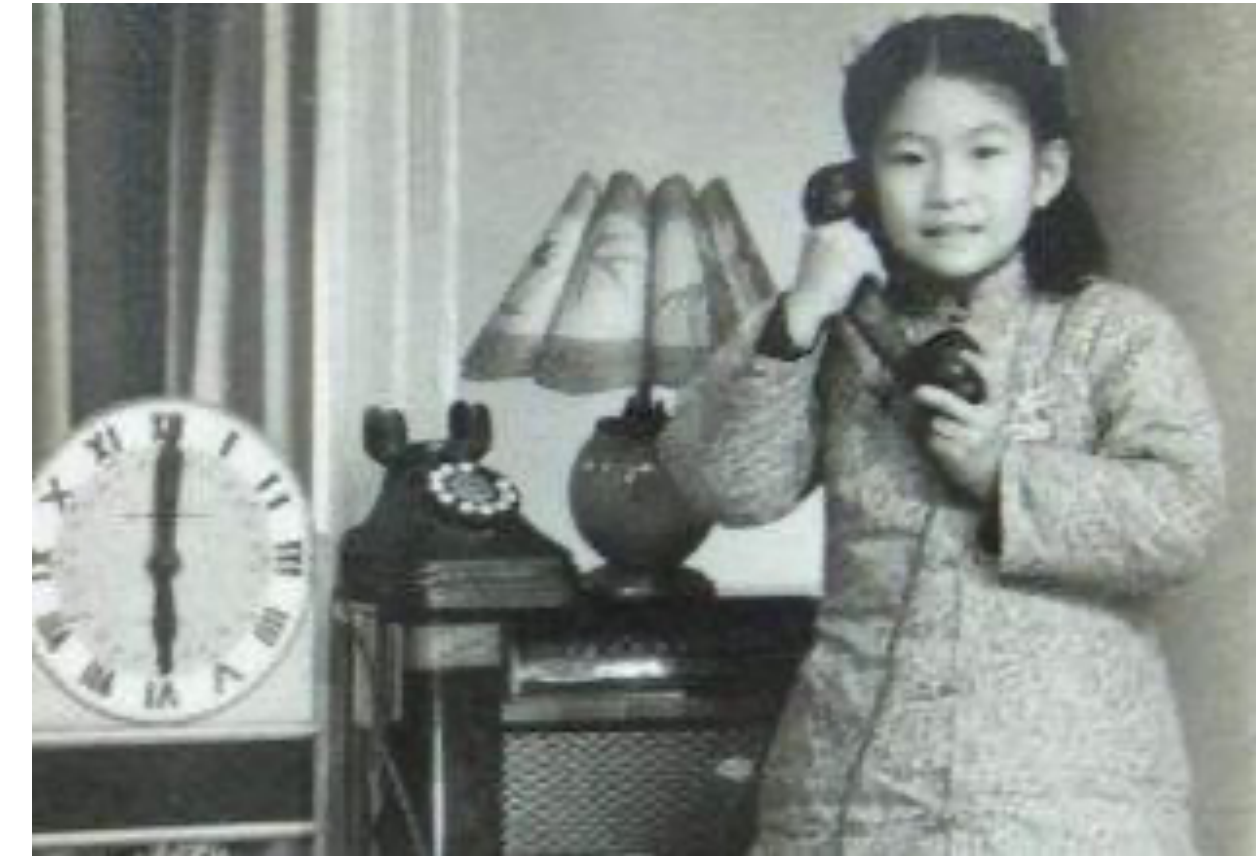
Evolution of Communication Networks

Early Stage
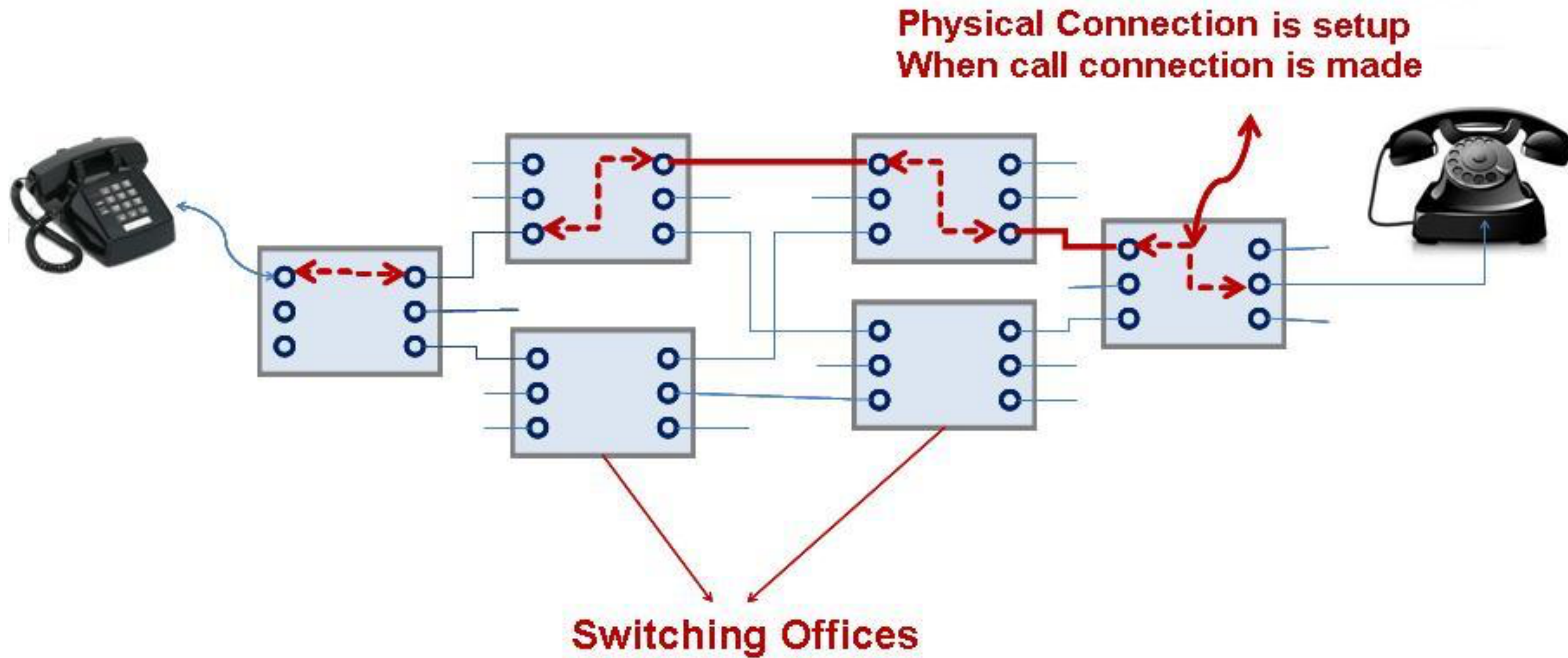

Postman

Switching Office

Telephone

First telegram in China: 1871

First telephone call in China: 1882

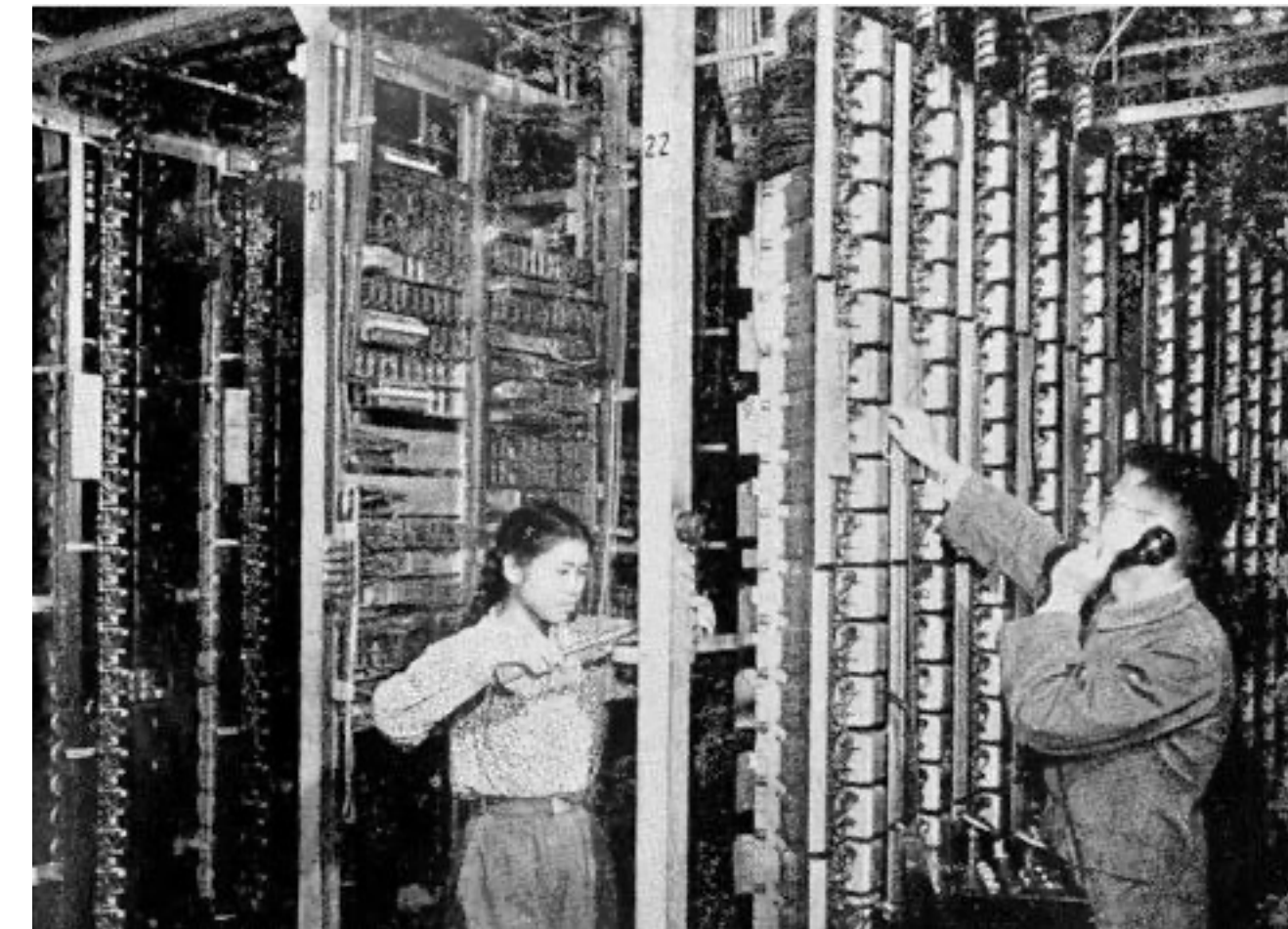# Evolution of Communication Networks
Early stage

Physical Connection is setup
When call connection is made

Switching Offices

Evolution of Communication Networks

1900s

Manually Switching

Crossbar Switch

The crossbar switch system is an electromechanical switching system used in telephone exchanges before the advent of electronic and digital systems
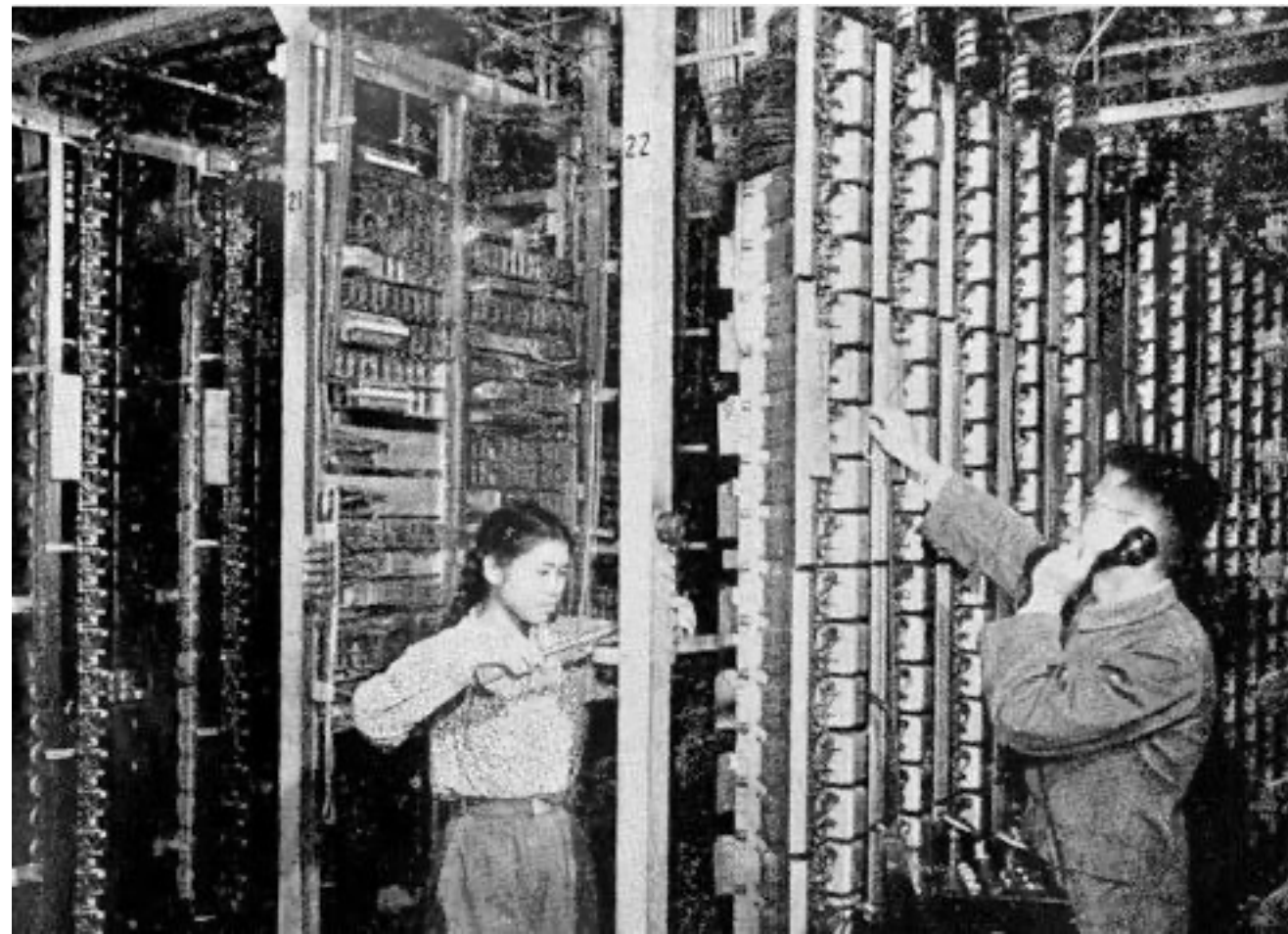
Evolution of Communication Networks
1900s

- NJUPT:

  - Established in 1958

Evolution of Communication Networks

Late 1900s

Crossbar Switch

Stored Program Control

- The switching system is controlled by a computer program stored in a memory in the switching system

Evolution of Communication Networks

Mobile phone era

Mobile Phone

Switching Server

Evolution of Communication Networks

Mobile phone era

Nokia Dominating Time

ADSL

Evolution of Communication Networks
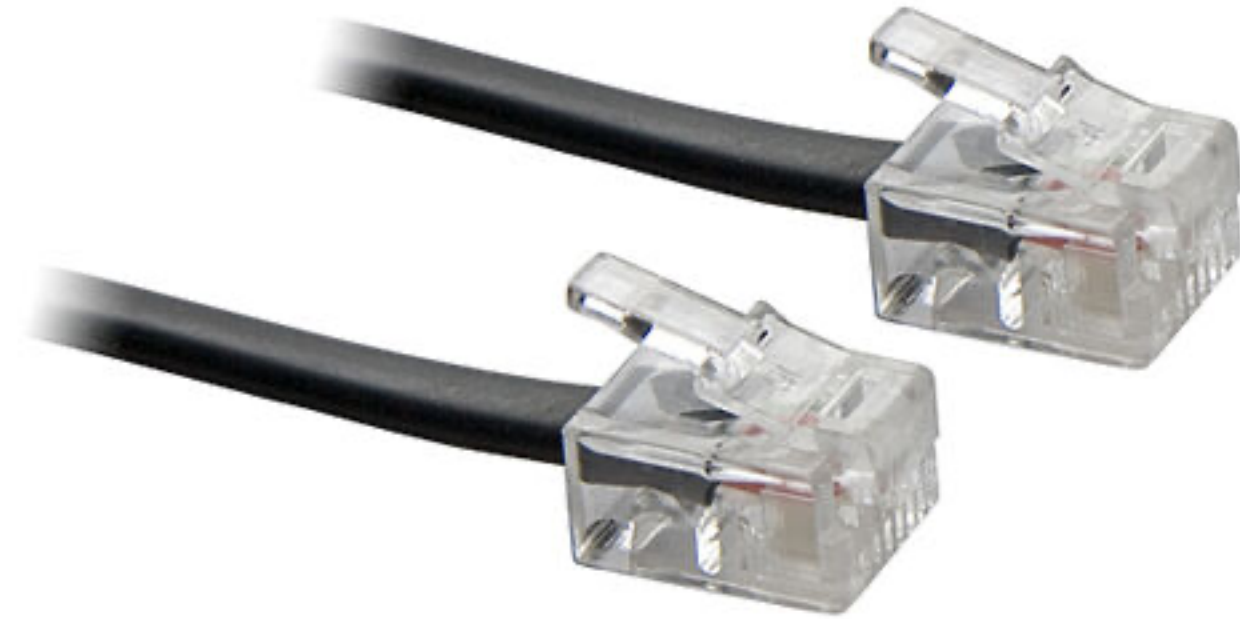
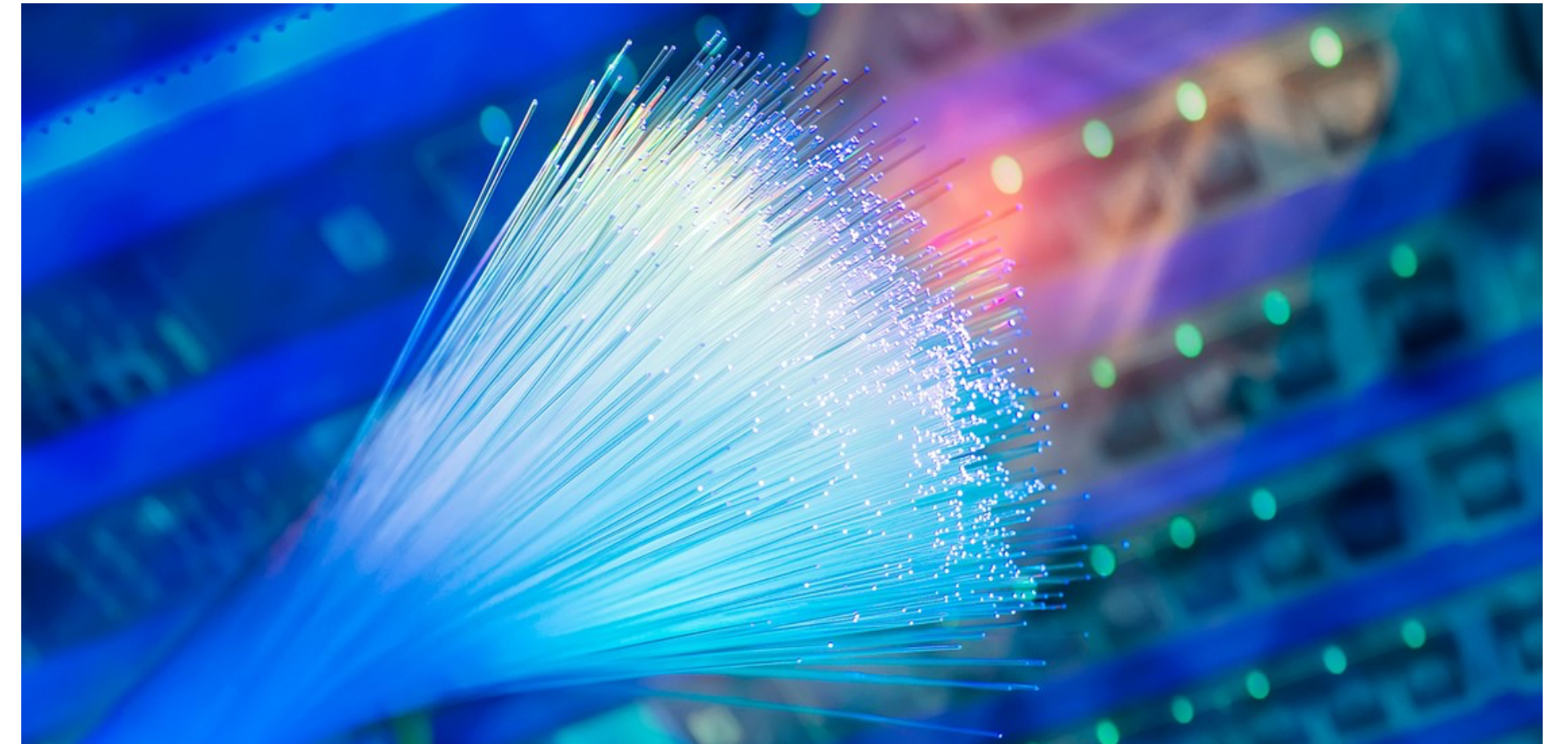**New century**

Nokia

Smart Phone

Evolution of Communication Networks
New century

ADSL Twisted Cable

Optical Fiber

Evolution of Communication Networks

New century

From 2G to 5G

Group Discussion

Share your country's communication history

- Group size: 3-5 person

- Discussion time: 5 mins

- Each group needs one representative to share your country's communication system history, and present your findings or conclusions from the history.

Thank You