

# Computer Networks Introduction

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قسم الهندسة الكهربائية

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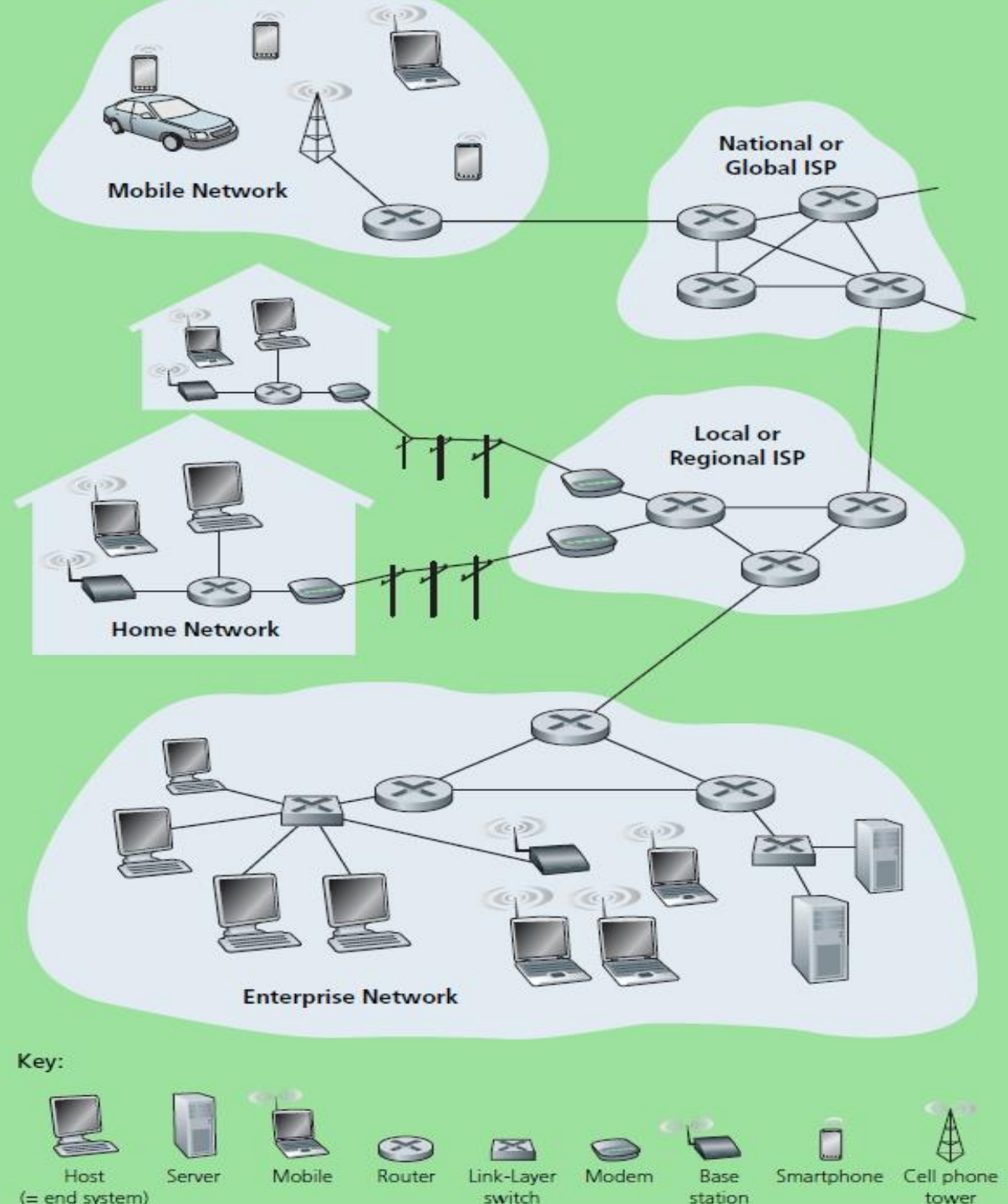
# What is a Computer Network?

- A computer network is a group of computers that use a set of common communication protocols over digital interconnections for the purpose of sharing resources located on or provided by the network nodes. (Wikipedia)
- There are other devices that are attached to the network, other than computers; such as smart phones, tablets, TVs, gaming consoles, Linux workstations, servers, printers, sensors, security systems, home appliance, etc.
- These devices are called hosts or end systems.
- The hosts or end systems are connected through communication links, routers and switches.
- When one end system has data to send to another end system, the sending end system divides the data and adds header bytes to each chunk. The resulting packages of information, known as packets, are then sent through the network to the destination end system, where they are reassembled into the original data.

# What Is the Internet?

- The Internet is a computer network that interconnects hundreds of millions of computing devices throughout the world.
- Internet Service Providers (ISPs): an entity (e.g., a company or an organization) that provides access to the Internet for end users.
- This includes residential ISPs such as local cable or telephone companies; corporate ISPs; university ISPs; and ISPs that provide WiFi access in airports, hotels, coffee shops, and other public places.
- Each ISP is in itself a network of packet switches and communication links.
- Each ISP network is managed independently, runs the IP protocol and conforms to certain naming and address conventions.

- Some pieces of the Internet.



# Network Protocols

- A **protocol** defines the format and the order of messages exchanged between two or more communicating entities, as well as the actions taken on the transmission and/or receipt of a message or other event.