Outline

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Computer Networks: A Computer Network is a system that connects two or more computing devices for transmitting and sharing information. Computing devices include everything from a mobile phone to a server. These devices are connected using physical wires such as fiber optics, but they can also be wireless.

Internet: INTERNET stands for Interconnected Network. Internet is a network of Networks, that connects millions of web servers and computing devices. The Internet carries many applications and services, most prominently the World Wide Web, including social media, electronic mail, mobile applications, multiplayer online games, Internet telephony, file sharing, and streaming media services.

Intranet : An intranet is a private network contained within an organization that is used to securely share company information and computing resources among employees. An intranet can also be used for working in groups. Intranets encourage communication within an organization.

What Is the Internet: A Nuts-and-Bolts Description
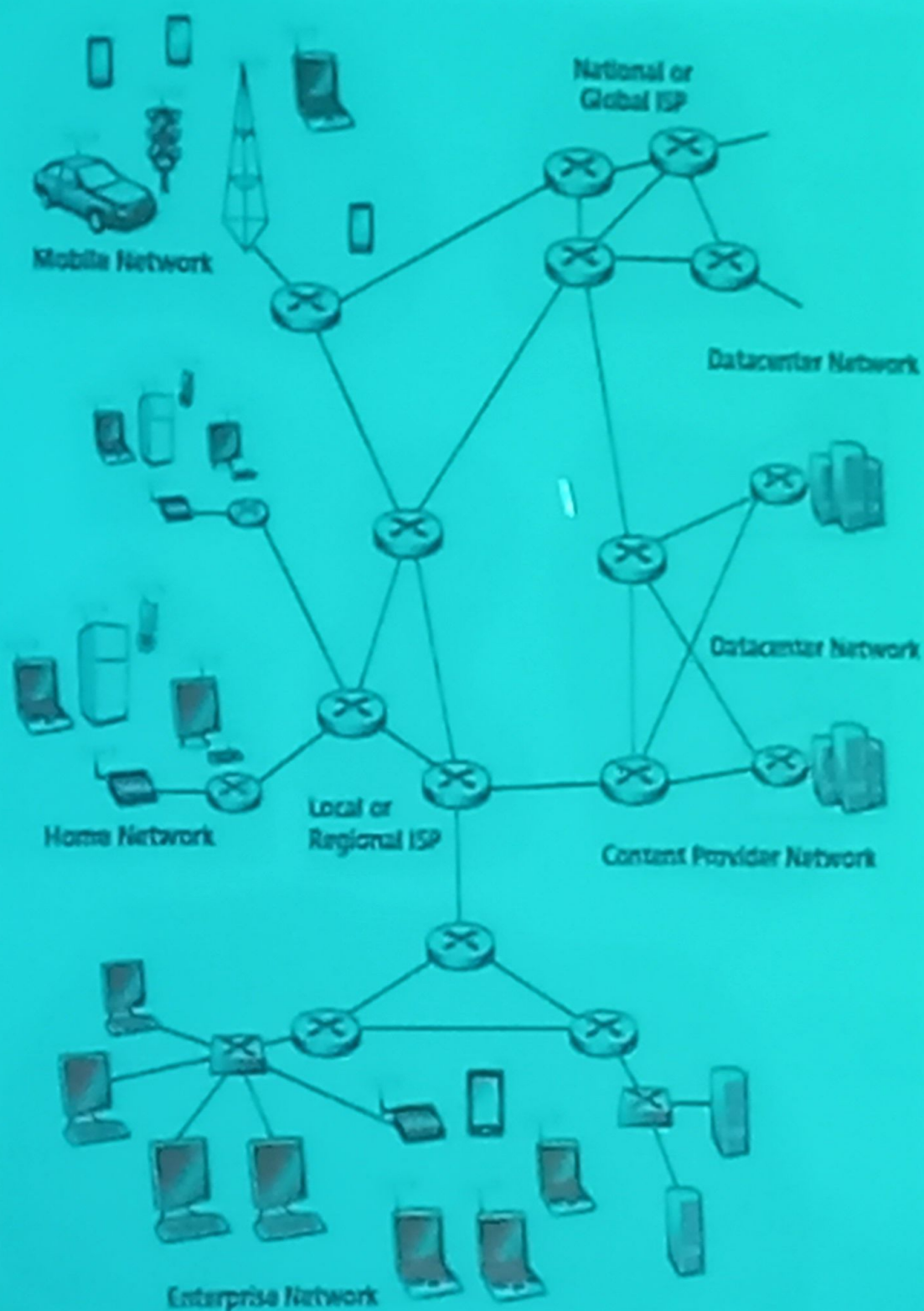
An enterprise network includes endpoint devices like PCs, laptops, mobile devices, and servers
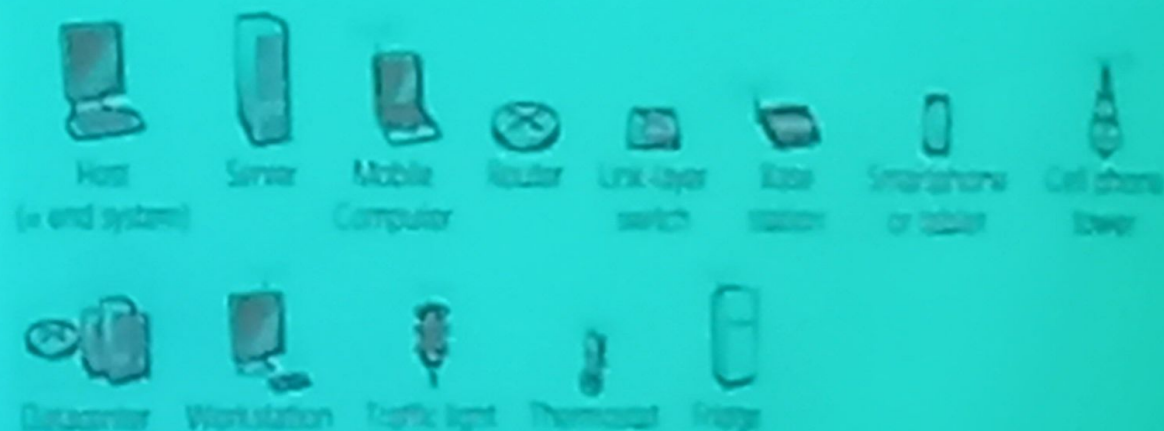
What Is the Internet: A Nuts-and-Bolts Description

- End systems are connected together by a network of communication links and switches. There are many types of communication links, which are made up of different types of physical media, including coaxial cable, copper wire, optical fiber, and radio links. Different links can transmit data at different rates, with the transmission rate of a link measured in bits/second. When one end system has data to send to another end system, the sending end system segments the data and adds header bytes to each segment. The resulting packages of information, known as packets in the jargon of computer networks, are then sent through the network to the destination end system, where they are reassembled into the original data.

Network Components:-

Network Bandwidth: Network bandwidth is a measurement indicating the maximum capacity of a wired or wireless communications link to transmit data over a network connection in a given amount of time. Typically, bandwidth is represented in the number of bits, kilobits, megabits or gigabits that can be transmitted in 1 second. Synonymous with Capacity, Data Transfer Rate.

Packet: A packet is a small segment of a larger message. Data (Large massages) sent over the Internet, is divided into packets. These packets are then recombined by the computer or devices that receives them to regenerate original massage. Packet is used in TCP (Transmission control protocol).

Datagram: Datagrams are used to send data between different nodes on a network, such as computers or servers. A datagram typically consists of a header and a payload. The header contains information such as the source and destination addresses, protocol type, and packet length. Datagram is an alternative term for "packet". Datagrams are used in UDP(User Datagram Protocol).

IP address: A public IP address is a unique IP address assigned to your network router by your internet service provider and can be accessed directly over the internet. A private IP address is a unique address that your network router assigns to your device.

Protocols: Protocol is a set of rules that govern data communication to exchange information easily and safely. Protocols serve as a common language for devices to enable communication irrespective of differences in software, hardware, or internal processes. A protocol defines what is communicated how it is communicated and when it is communicated.
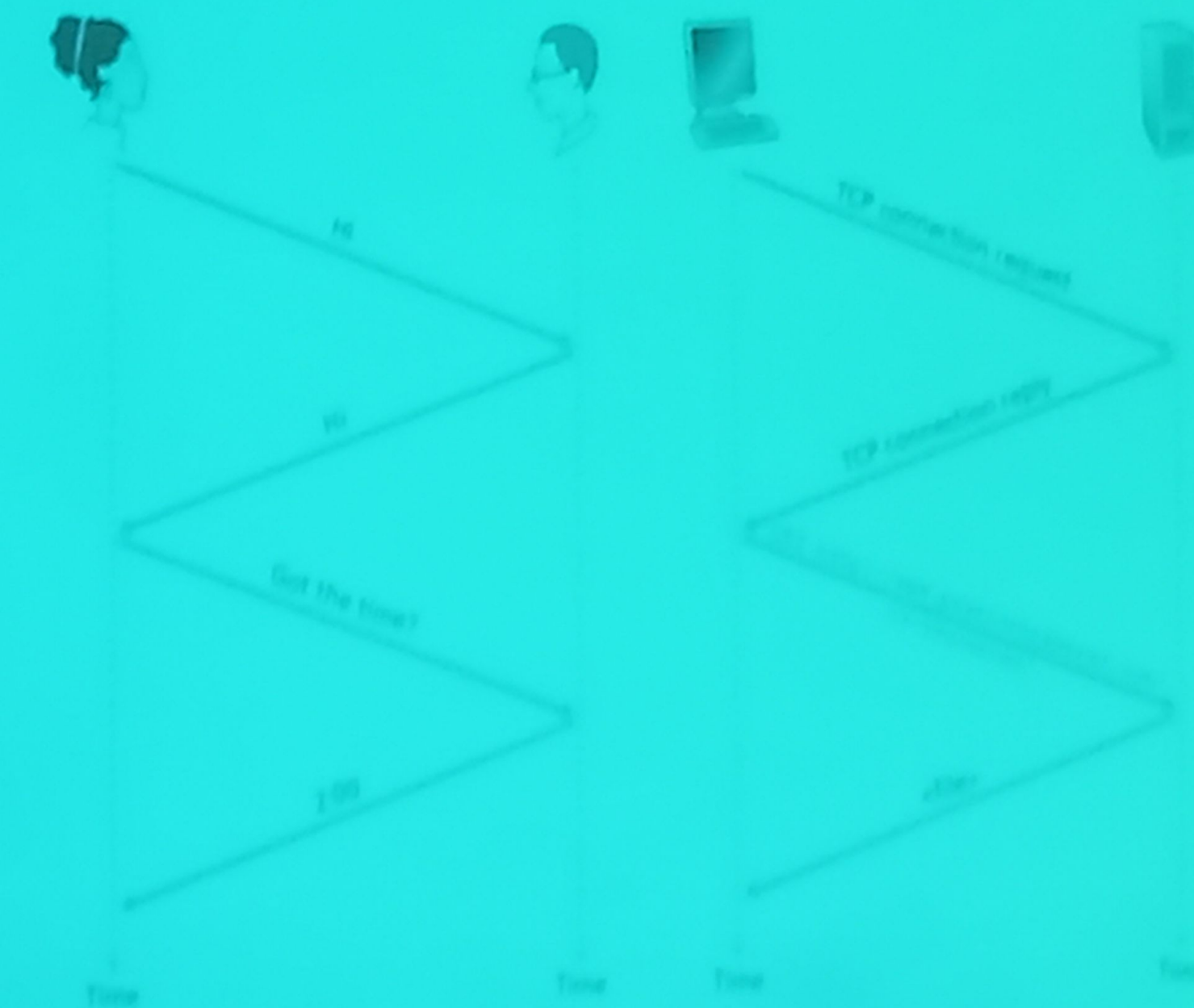
What Is a Protocol?

Fig. A human protocol and a computer network protocol
(Source: Computer Networking: A Top-Down Approach, James F. Kurose and Keith W. Ross)

Hub: Hub is a node that broadcasts data to every connected computer or device.

Bridge: A bridge is a network device that connects two subnetworks to create a single network. Through a bridge, two LANs (even different topologies) can be connected to form a larger and extended LAN. Bridge operate at layer 1 & 2 (Physical and Data Link Layer) based on the OSI model. Bridge can perform three basic functions forwarding, filtering and learning functions. Forwarding is passing a frame towards its ultimate destination. Filtering operates by discarding frames where their destination is not available. Learning is the function of bridge perform when it does not receive a positive response in return for comparing a frame to its host's table.