

Principles of Enterprise Networking

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Objectives

- Overview of networking concepts and terminologies
- Layered networking model
- Project introduction
- Packet capture

What is the internet

- What is it made of?
- what is its purpuse?
- How does it work?

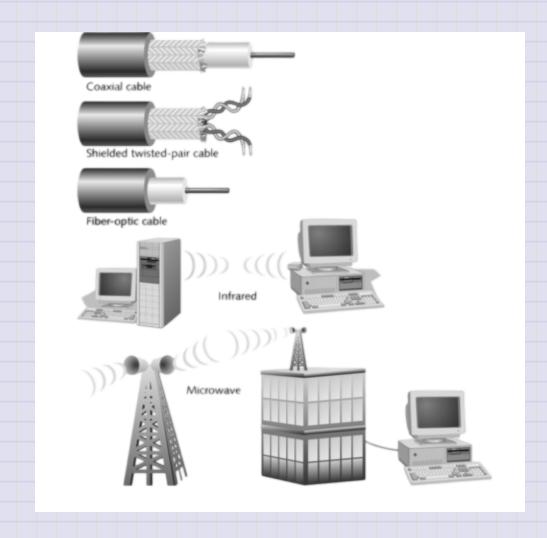
Network

Collection of nodes connected by some type of transmission media or link, for the purpose of sharing services, devices or data (i.e. networked resources)

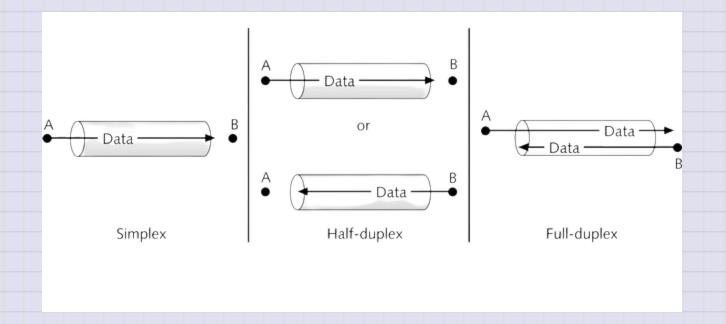
Node

Any device that can communicate over the network and is identified by a unique identifying number, known as its network address.

Link

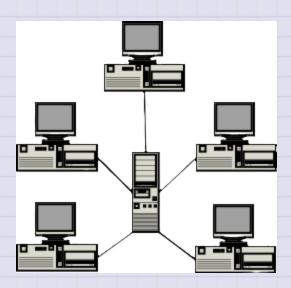


Media concurrency and direction

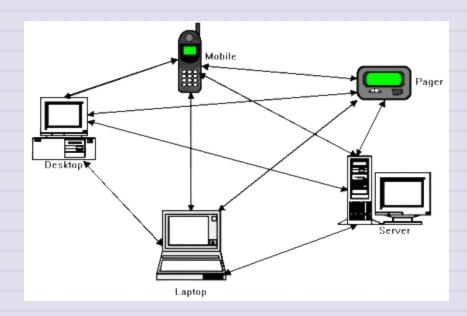


Resource Control

Client-server Networks



Peer-to-peer Networks



Types of Networks

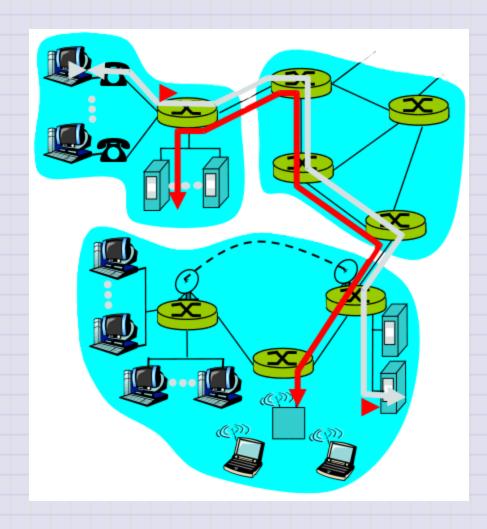
- LAN
- WLAN
- PAN
- CAN
- MAN

- WAN
- SAN
- EPN
- VPN

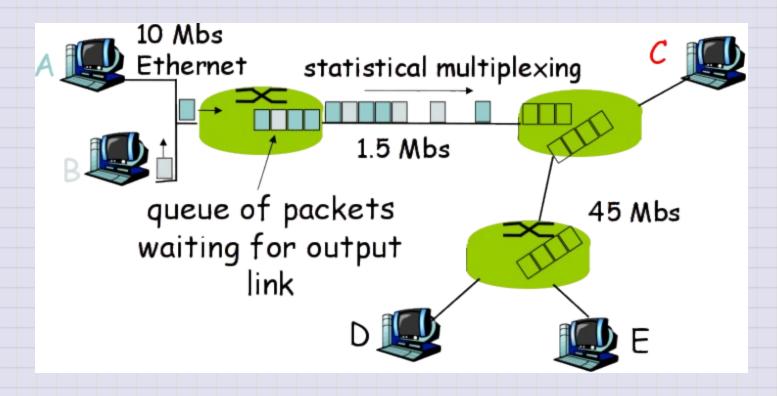
Learn more

Switching Methods

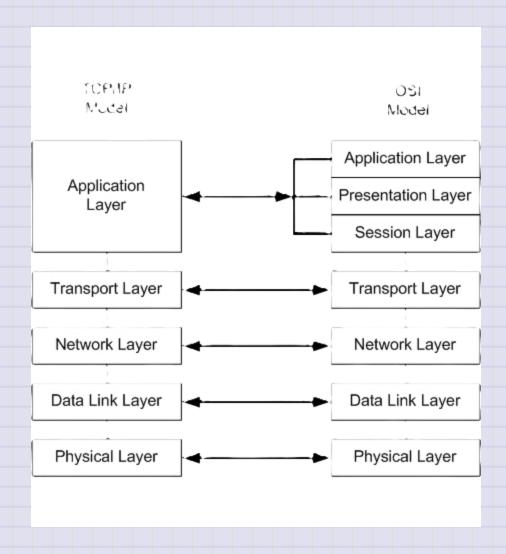
Circuit Switching



Packet Switching



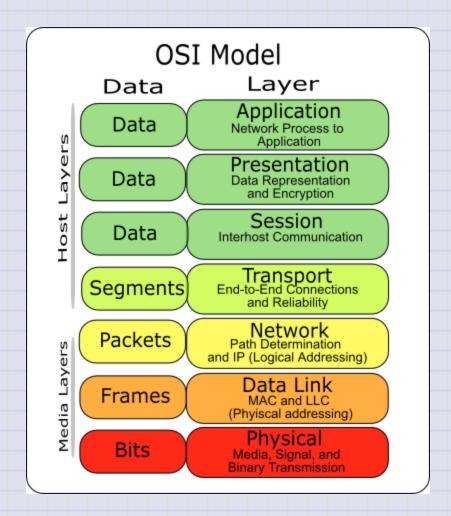
Layered networking model



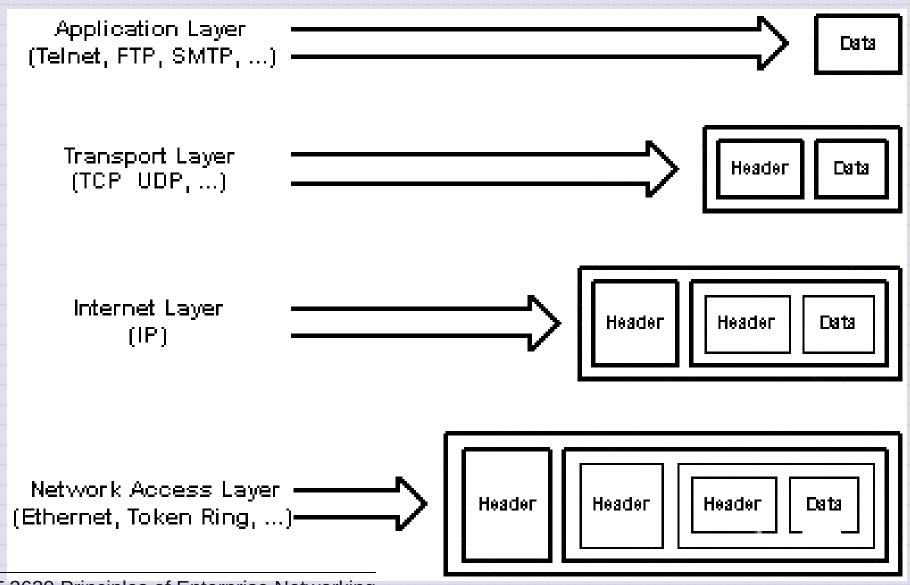
Layered why?

- Managing complexity: explicit structure allows identification and makes explicit the relationship of complex system's pieces
- Modularization: changing of an implementation of a specific layer's service is hidden from the rest of the system

Protocol Data Units (PDU)

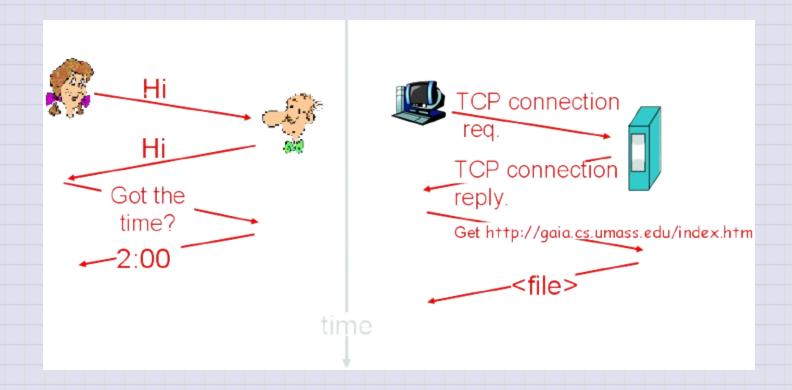


Encapsulation



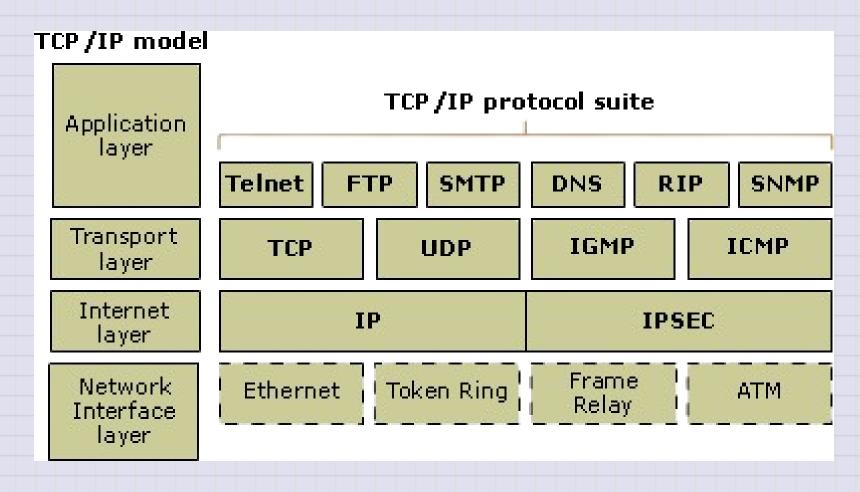
ACIT 2620 Principles of Enterprise Networking

Protocols



- Mutually agreed upon rules for communication
- Define the format, order of messages sent and received among network entities,
 and actions taken upon transmission, receipt, and timeout
- Govern all communication activity on the internet

TCP/IP protocol suite



Wireshark

- A tool for capturing network traffic for analysis
- Grab the installer and install it on your system

Reading list

- This week
 - OSI Model
 - Optional reading:
 - Wireshark: filtering while capturing
 - Capture filters
 - Display filters

- Week Two (read/watch these before next class)
 - Common Network Infrastructure devices
 - Network devices
 - Network Topologies
 - Overview of networks
 - Optional (but highly recommended):
 - Linux command line (recommended for beginners)