LE 517
Data Communications and Networks

Week 1:- Introduction and Computer Networks

By

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Introduction

- Welcome to LE 517 Data Communication and Networks course.
- Please share the experience and background.

Introduction

Course Syllabus

- ***Text Book***
  - William A. SHAY, ***Understanding Data Communications and Networks***, PWS Publishing Company.
- ***Reference Books***
  - William Stalling, ***Data and Computer Communications***, Prentice Hall
  - Behrouz A. Forouzan, ***Data Communications and networking***, McGraw-Hill
- ***Grading***
  - Class Participation 10%
  - Projects and Reports 30%
  - Midterm Exam 30%
  - Final Exam 30%

Introduction

Week	Content
1	Introduction to Communications and Computer Networks
2	OSI Model and Standards
3	Communication Media and Codes
4	Transmission, Interface and Multiplexing
5	Contention Protocols and Data Compression
6	Data Integrity
7	Data Security and Encryption
8	Mid-term Examination
9	Protocol Controls
10	LAN Technology Part I
11	LAN Technology Part II
12	WAN Technology Part I
13	WAN Technology Part II
14	Additional Network Protocols I
15	Additional Network Protocols II
16	Review
17	Final Examination

Introduction

- Class moves to 406-5
- Assignment
  - Before Mid-term Exam
  - Before Final Exam
- Class Participation mark is based on quick note that will collect in the end of class take time about ~ 10-15 mins.

Introduction

- Communications Overview
  - History
  - Applications
  - Problems
- Computer Networks
  - Bus Topology
  - Star Topology
  - Ring Topology
  - Fully Connected Topology
  - Combined Topology

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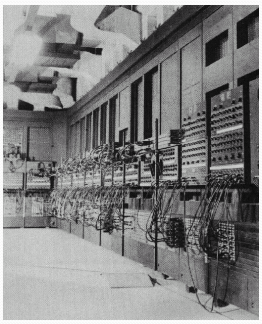
History

- Communication: Switch Board
  - Early telephone system which require a pair of wire to connect each party before starting conversation.

History

- Computer: ENIAC
  - About 1945, ENIAC is the first electronic computer invention designed for military purpose.



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Application

- Satellite
- LAN & WAN
- Email
- FAX
- Teleconference
- Etc.

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Problems

- Accessibility
- Cost
- Integration
- Environmental
- Etc.

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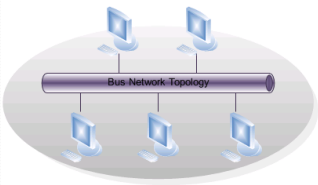
Bus Topology

- Devices are connected via a single bus. To communicate, each device listens to the bus and reads data from their own conversation.



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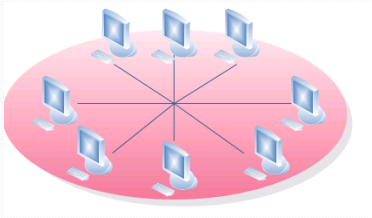
Star Topology

- Central computer that communicates with other devices in the network.



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Ring Topology

- Devices are connected circularly or each devices can communicated to the neighbor or through the neighbor.

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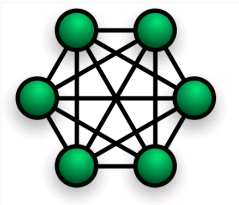
Fully Connected Topology

- Each device has a direct connection to every pair in the network.



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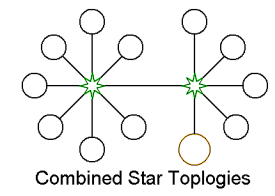
Combined Topology

- Mixing various topologies in one network.



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Q & A