

# Data Communication and Computer Networks

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## Text Book

**Data Communications and Networking**,  
3rd Edition, Behrouz A. Forouzan, McGraw-Hill, 2003.

### Supplements

**Data & Computer Communications**, 7<sup>th</sup>  
Edition, William Stallings, Prentice Hall,  
2003

## Introduction

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## Introduction

- Motivation
- Data Communication
- Networks
- Protocols and Standards
- Standard Organizations

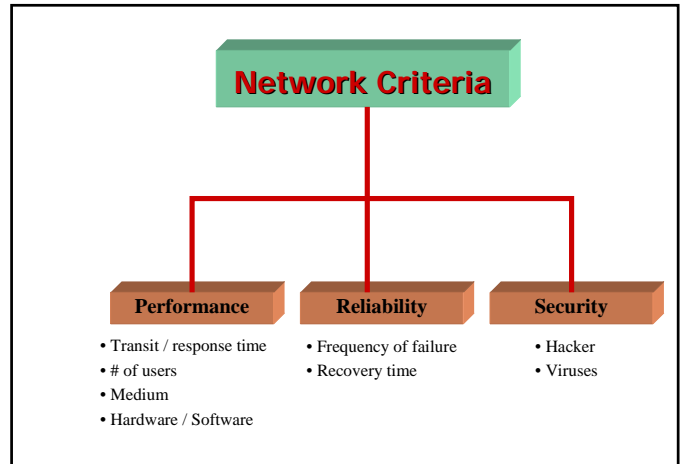
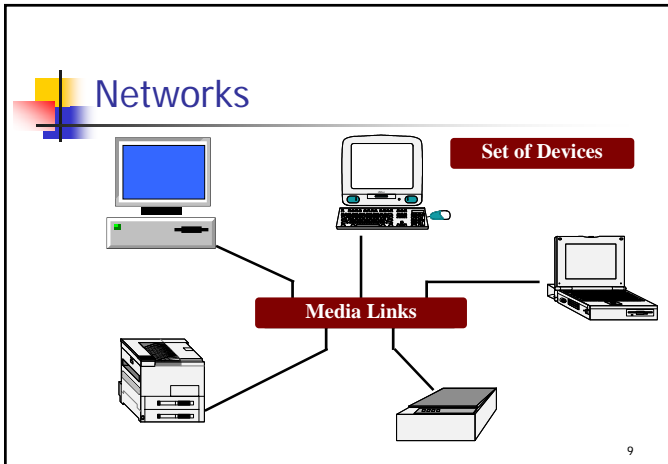
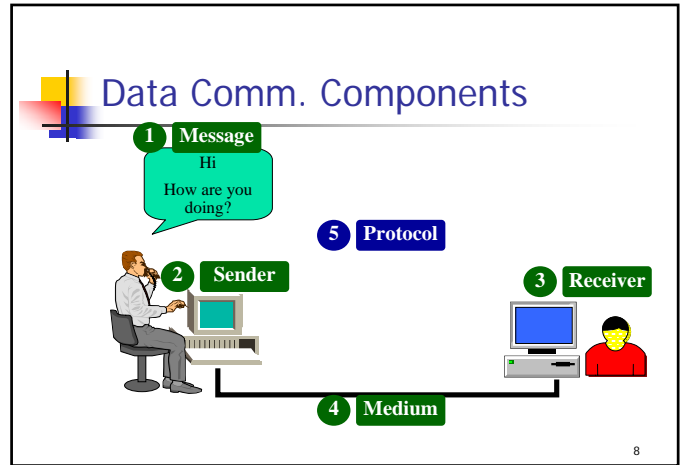
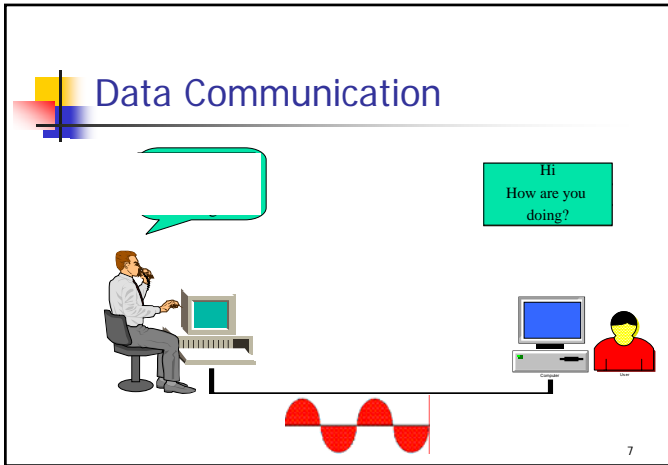
## Motivation

- People
- Communication Goal
  - Exchange / Share information (data)
- Communication method

	Past	Present
Local	Talk Gesture Printed document	Electronic Document
Remote	Mail Telephone TV	Email Wireless Phone, Video Phone Video conferencing

## Motivation

- The Changes
  - Efficiency way to communicate and sharing data
  - Time – Faster
  - Size – bigger
  - Correctness – Accurate
  - Accessibility – Easier
- How can these happen?



- ## Protocol Definition
- A set of rules for communication
  - Need to be agreed on both sender and receiver
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- ## Protocol Elements
- Syntax (โครงสร้าง)
    - Structure or format of data
    - Frame Format: Destination Add, Source Add, Data
  - Semantics (ความหมาย)
    - Meaning and action
    - Does this Address belong to me?
  - Timing
    - When & How fast
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## Standards

- A general model for different products or services to seamlessly work together
- Guideline for manufactures or related people
- Developed by a single group, groups or committees
- 2 standard categories
  - De facto standard – by fact (พฤตินัย) e.g. Windows
  - De jure standard – by law (นิตินัย) e.g. traffic light

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## Standards Organizations

- ISO (International Standards Organization)
- ITU-T (International Telecommunications Union – Telecommunication Standards Sector)
- IEEE (Institute of Electrical and Electronics Engineers)
- Etc.

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