Komunikasi Data

1. Pendahuluan

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Nama Mata Kuliah	Komunikasi Data
Kode Mata Kuliah	TES 3211
Beban SKS	2 (Dua)
Semester	6 (Enam)
Dosen	Anhar, ST., MT.
Hari/Pukul	Senin/13.00-14.40 WIB
Ruang	Lab Komputer/319
Peserta	30 orang
Prasyarat	Jaringan Telekomunikasi Dasar Telekomunikasi

TIU

- Memahami beberapa konsep dasar jaringan komunikasi data
- Menjelaskan karakteristik dan fungsi layers arsitektur OSI yg membangun jaringan data (layer 1 hingga 3) dan menempatkannya ke dlm komponen jaringan (protocols, hardware, programs , etc).

Strategi Perkuliahan

- Ceramah dng handout yg diberikan.
- Tanya jawab dan diskusi dr materi yg disampaikan.
- Responsi dr soal-soal yg diberikan.
- Presentasi.

Referensi

- Stalling, William, Data and Computer Communication, Prentice Hall International, Inc., 2000.
- B. A. Frousan, Data Comm and Networking, McGraw Hill, 2007.
- Dony Ariyus, Komunikasi Data, Penerbit Andi, 2008.
- Communication network : fundamental concepts and key architectures, Leon Garcia, Indra Widjaja, McGraw Hill, 2001.
- Anhar.staf.unri.ac.id
- Internet

Penilaian

- Evaluasi :
  - PR/Tugas : 10-25%
  - QUIZ : 10-25%
  - UTS : 25-35%
  - UAS : 30-40%
  - Keaktifan : 5-10%

Penilaian

Nilai Angka (NA)	Nilai Angka (NA)	Nilai Mutu	Angka Mutu	Sebutan Mutu
> 85	85<NA<=100	A	4	Sangat Baik
81 - 85	80<NA<=85	A -	3,75	Sangat Baik
76 - 80	75<NA<=80	B +	3,5	Baik
71 - 75	70<NA<=75	B	3	Baik
66 - 70	65<NA<=70	B -	2,75	Cukup
61 - 65	60<NA<=65	C +	2,5	Cukup
51 - 60	50<NA<=60	C	2	Cukup
45 - 50	45<=NA<=50	D	1	Kurang
< 45	<45	E	0	Gagal

Penilaian

- Tugas
  - Harus dikumpulkan pd waktunya
  - Terlambat, dikurangi, 3 point per hari
- Quiz
  - Tutup buku.
  - T/F, multiple choice, mengisi titik2
  - Waktunya pendek
- UTS dan UAS
  - Buka buku
  - Essay dan mengisi titik2.

Jadwal Kuliah

Tanggal	Topik Bahasan
25 Februari	Kontrak Kuliah, Pengantar Komunikasi Data
4 Maret	Protokol dan Model Lapisan OSI
11 Maret	Lapisan Fisik :Data dan Sinyal serta Transmisi Data
18 Maret	Quiz I, Lapisan Fisik : Multiplexing dan Media Transmisi
25 Maret	Lapisan Fisik : Swithing
1 April	Lapisan Data Link : Error Detection and Correction
8 April	Responsi dan quiz II
15 April	UTS

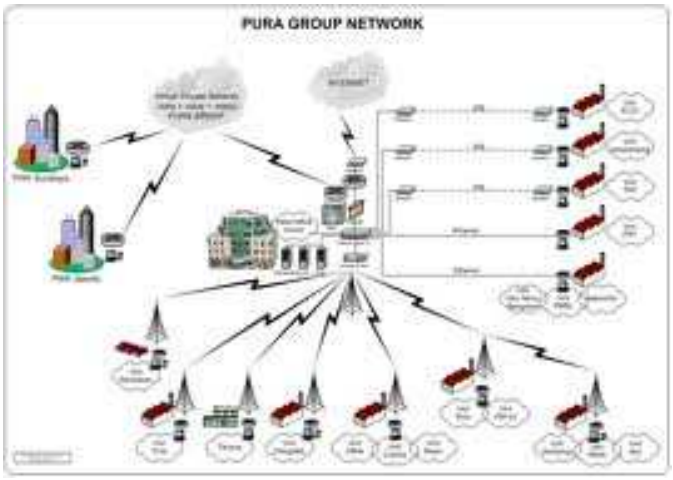
Jadwal Kuliah

Tanggal	Topik Bahasan
22 April	Lapisan Data Link : Data Link Control
29 April	Lapisan Data Link : Data Link Control
6 Mei	Quiz 3, Lapisan Data Link : Multiple Access
13 Mei	Lapisan Data Link : Multiple Access
20 Mei	Wired LAN
27 Mei	Quiz 4, Wireless LAN
	UAS

Peraturan Perkuliahan

- Menggunakan pakaian yg sopan dan rapi
- Menggunakan sepatu
- Mengikuti setiap evaluasi yg dilakukan (quiz, UTS dan UAS)
- Tidak memanipulasi kehadiran
- Datang paling lambat 13.15 wib
- Tidak mencontek sewaktu ujian
- Matikan/silent kan hp

Jaringan Data



Wireless Mesh Network

Why Study Data Communication and Networking?

- Change the way we do business and the way we live
  - Require immediate access to accurate information
    - Database, online shopping
  - Enable long distance communication
    - Internet, IP phone
  - Access variable of information such as text, voice and image
    - Email, messenger, video conference

- What is communication?
- What is data communication?

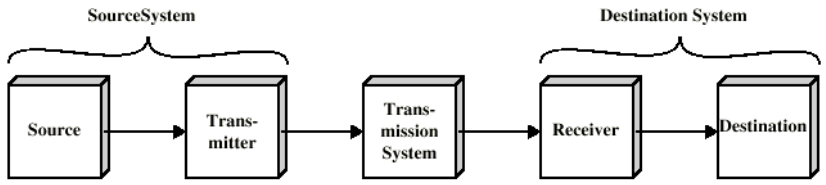
What is data comm?

- Communications
  - The exchange of information between individuals using a common set of symbols, signs, behavior or language.
  - Objective: Ability to share information over long distances
    - High volume of information
    - No loss of accuracy (also protected from prying eyes)
    - Fast transmission rate
  - Early attempts:
    - Voice Telegraph, Messengers / Runners, Signal Fires (mentioned by Homer in 1200 BE), Semaphores (Chappe brothers in France, 1793), Telegraph (first demonstrated in 1844 by Samuel Morse)
- Data
  - Information presented in whatever forms is agreed upon by the parties creating and using data
- Data communications
  - The exchange of data between two devices via some form of transmission medium such as a wire cable

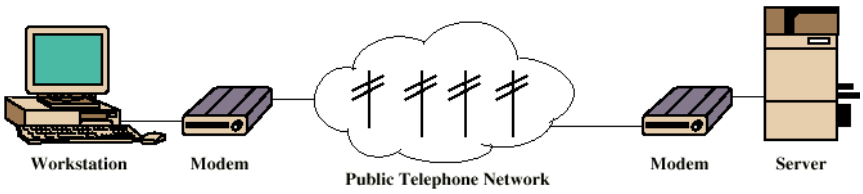
Model Komunikasi

- Source
  - generates data to be transmitted
- Transmitter
  - Converts data into transmittable signals
- Transmission System
  - Carries data
- Receiver
  - Converts received signal into data
- Destination
  - Takes incoming data

Blok Diagram sederhana



(a) General block diagram

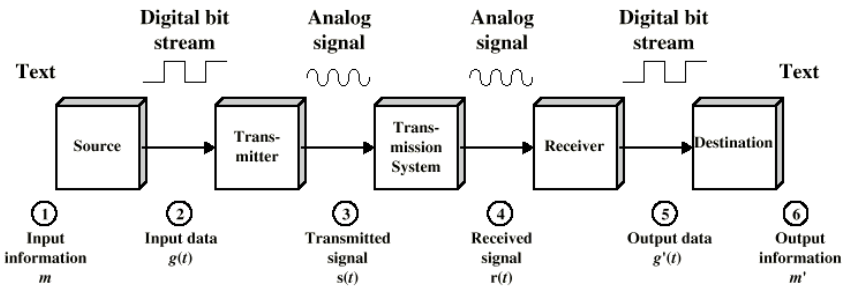


(b) Example

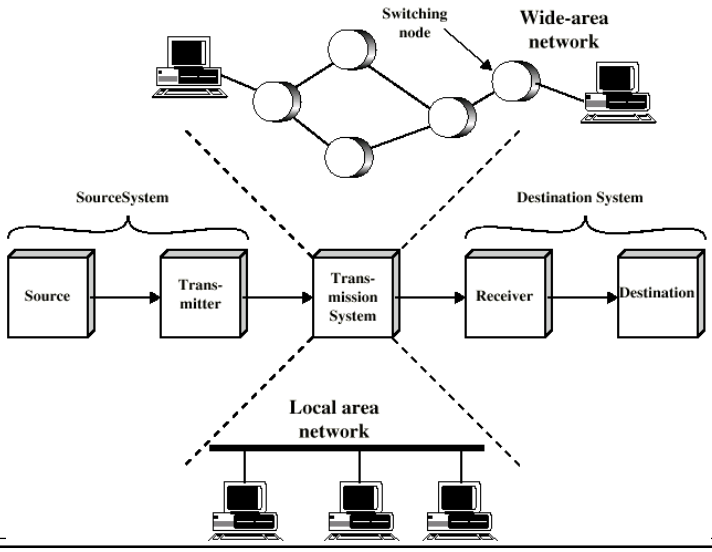
Apa yg dilakukan sistem?

- Transmission System Utilization
- Interfacing
- Signal Generation
- Synchronization
- Exchange Management
- Error detection and correction
- Addressing and routing
- Recovery
- Message formatting
- Security
- Network Management

Model Sistem Komunikasi Data



Jaringan sbg Solusi



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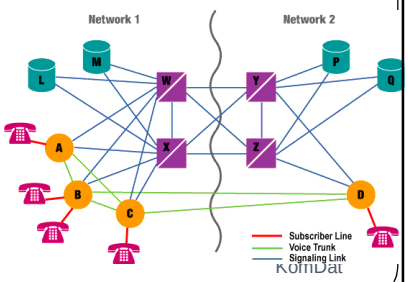
Blok diagram jaringan

- Suatu jaringan, secara prinsip, terdiri dari node dan link (yg menghubungkan node-node)
- Node: PC, server, special purpose hardware
  - Terminologi Internet
    - hosts, end-systems: PC dan server menjalankan aplikasi jaringan
    - routers (switches): menyimpan dan meneruskan paket melalui jaringan
- Link: optical fiber, coaxial cable, twisted pair copper, radio, dll.
  - Point-to-point
    - Host dihubungkan secara langsung
  - Multiple access (LAN, dll)
    - Host menggunakan bersama (share) media transmisi



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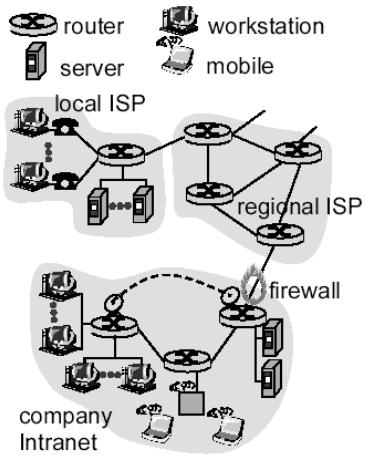
Ex : Jaringan Internet

- Terdiri dari jutaan host (end system) dihubungkan oleh link dan router
- Host mempertukarkan message dg menggunakan protocol, yg menawarkan, mis.
  - Transfer handal
  - Integritas urutan paket
- Router meneruskan data
  - Berdasarkan service best effort
  - Tdk ada jaminan thd kehilangan atau ketepatan waktu
- "Networks of networks"
  - Loosely hierarchical
  - Akses Internet disediakan oleh ISP (Internet Service Provider)