

Bab 1. Dasar-dasar Komunikasi Data

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Pendahuluan

- Perkembangan Teknologi Informasi
- *Information based* dan *information age*
- Dibutuhkan informasi yang tepat, mudah, cepat dan aman
- Komunikasi data, cepat atau lambat pada akhirnya akan mengarah ke suatu sistem jaringan

- Komunikasi data merupakan proses pengiriman informasi diantara dua titik menggunakan kode biner melewati saluran transmisi dan perangkat
- Bisa antara komputer dan komputer, komputer dengan terminal, atau komputer dengan peralatan, atau peralatan dengan peralatan.

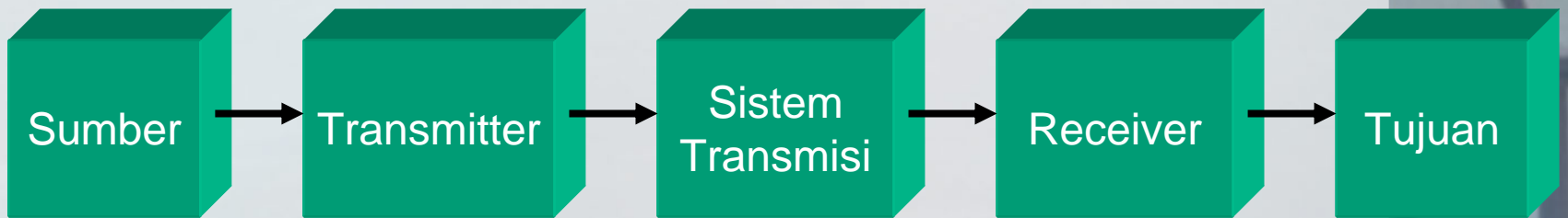
- Awalnya hanya melibatkan satu pemancar data ke satu penerima data.
- Hubungan ini berkembang dan akhirnya melibatkan penerima lainnya ataupun pemancar lainnya, maka terbentuklah sebuah jaringan komunikasi data
- Ex : *client ke client, client ke server, sinyal telpon, SMS, Radio, Televisi...*

Data & Informasi

- Dimana saja dan kapan saja
- *Mobile communications*
 - *WiFi, Hotspot, WiMax, GPRS, GSM, CDMA, ...*
- Input – proses – output

Konsep Dasar Komdat

- **Elemen utama ;**
 - **Sumber / source**
 - Ex : telpon dan pc
 - **Transmitter**
 - Ex : modem merubah sinyal digital ke analog
 - **System transmisi**
 - Jalur transmisi yang menghubungkan sumber dan tujuan
 - **Receiver**
 - Ex : modem merubah sinyal analog ke digital
 - **Destination (tujuan)**



**Informasi
input**

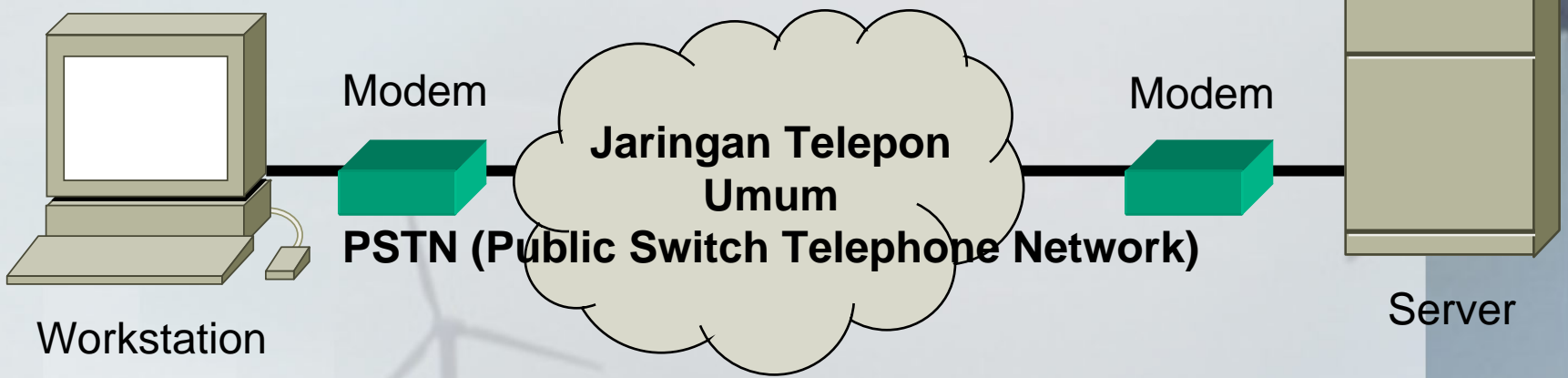
**Data
input**

**Sinyal
dikirim**

**Sinyal
diterima**

**Data
output**

**Informasi
output**

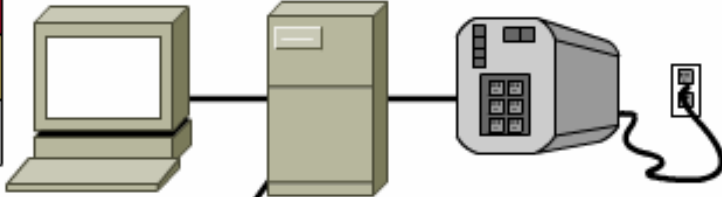




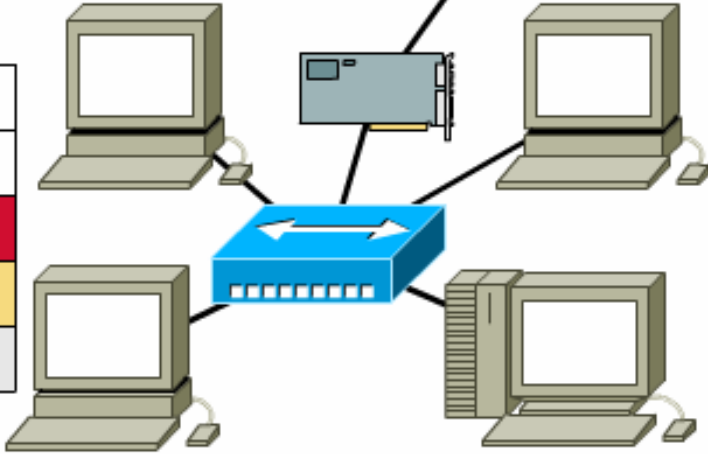
Manfaat Komdat

- **Data Sharing**
- **Program Sharing**
- **Device Sharing**
- **Hubungan dengan sistem yang berbeda**
- **Paperless**

Network Operating System Services	
IPX	Appletalk
Card Driver NE2000	



Application
DOS
Client32 Requester
IPX
Card Driver NE2000



Windows
DOS
Client32 Requester
IPX
Card Driver NE2000

Macintosh Operating System
Appletalk
Card Driver NE2000

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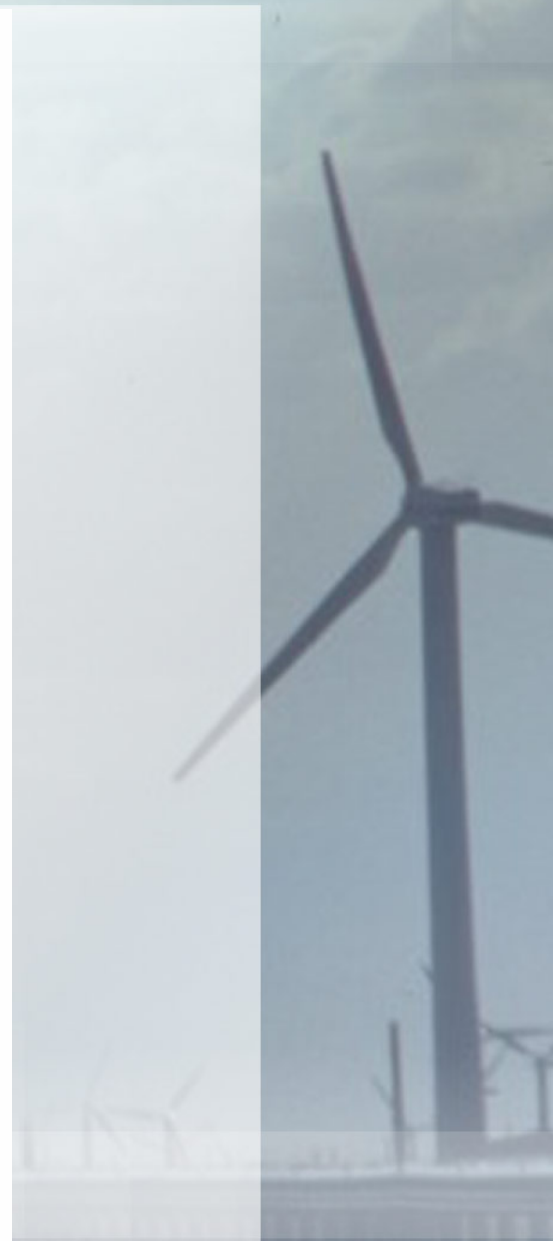
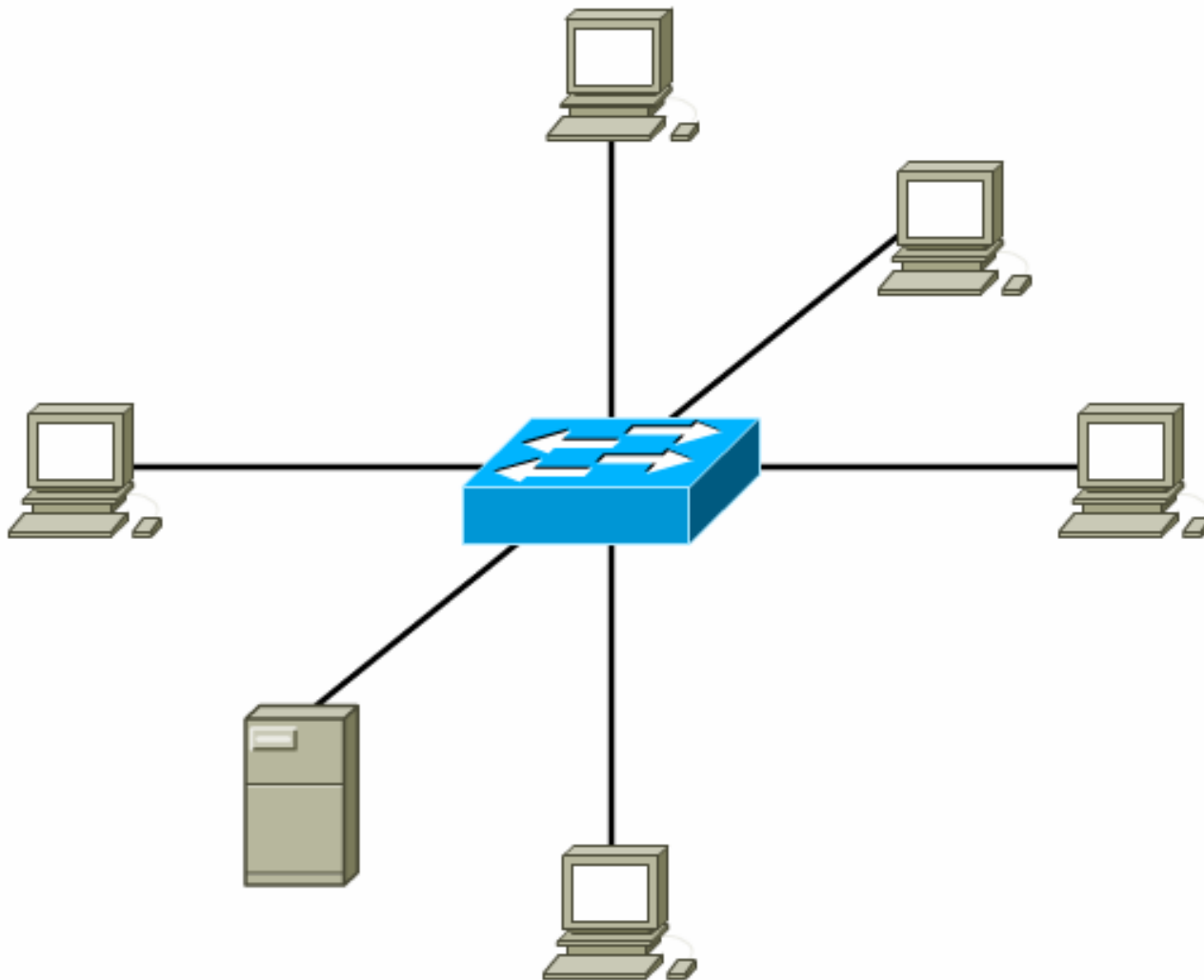
Contoh Aplikasi Komdat

- ***Email***
- ***Hotel Reservation Online***
- ***Automatic Teller Machine***
- ***Traffic Control Systems***
- ***KRS Online***
- ***...***

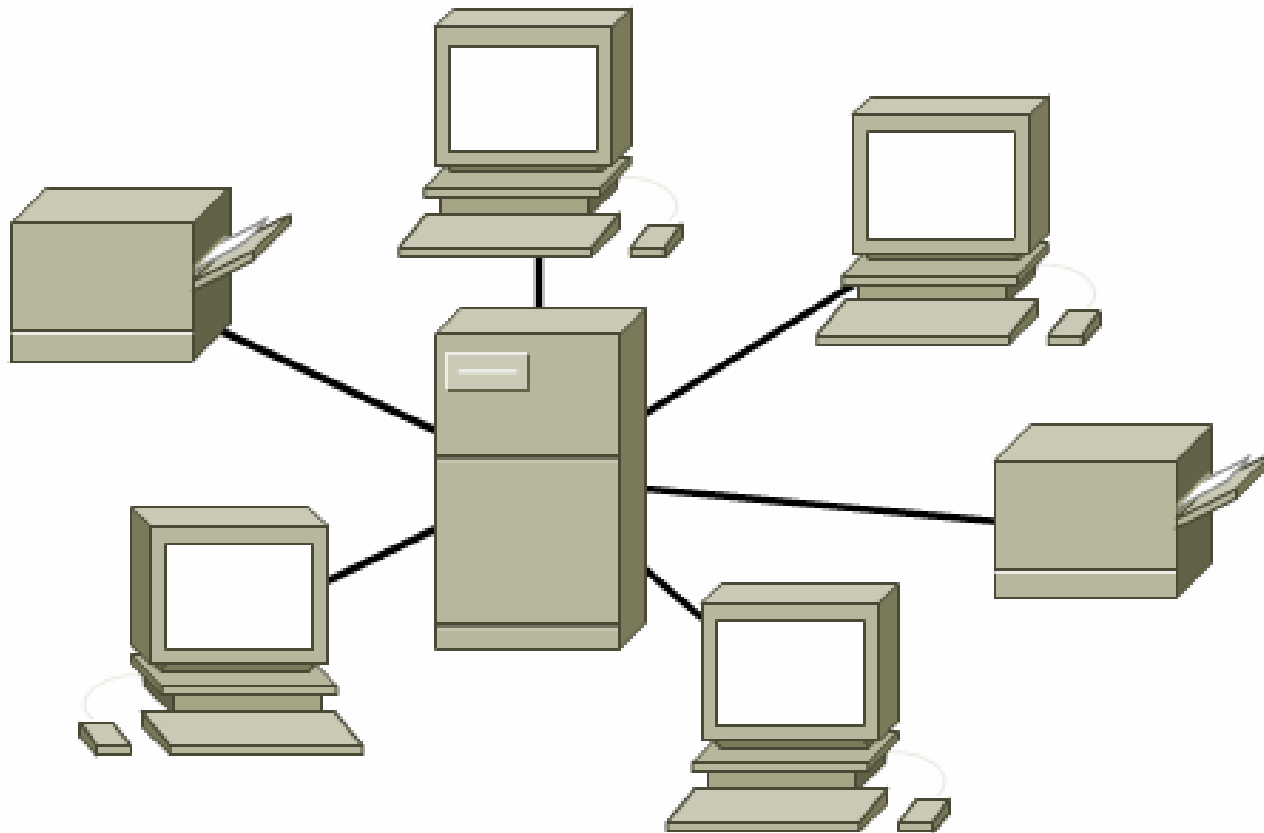
Metode Komdat

- ***Point to Point (P 2 P)***
 - Peer to peer (NAPSTER, KAZZA, iMesh,...)
- ***Point to Multipoint (P 2 M)***
 - Client server

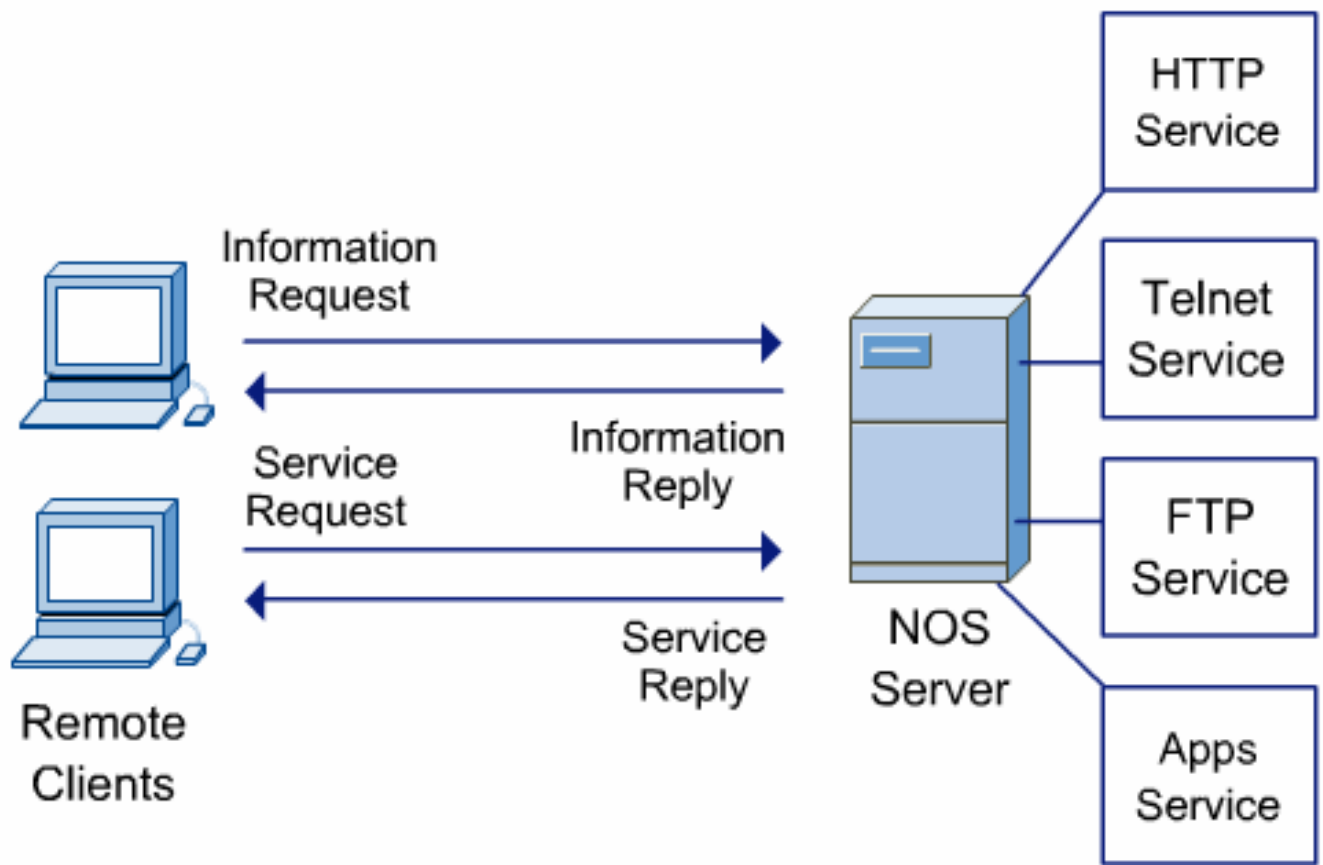
Peer-to-Peer Network



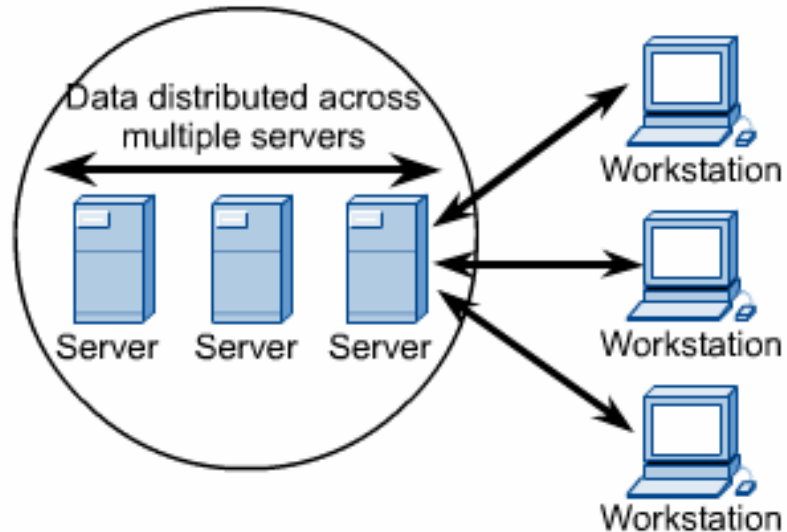
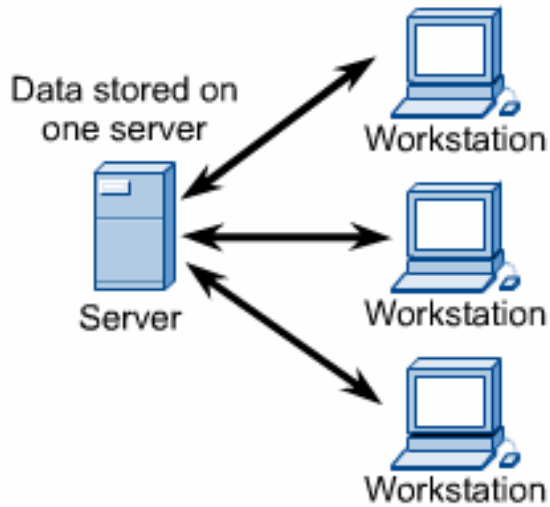
Client-Server Network

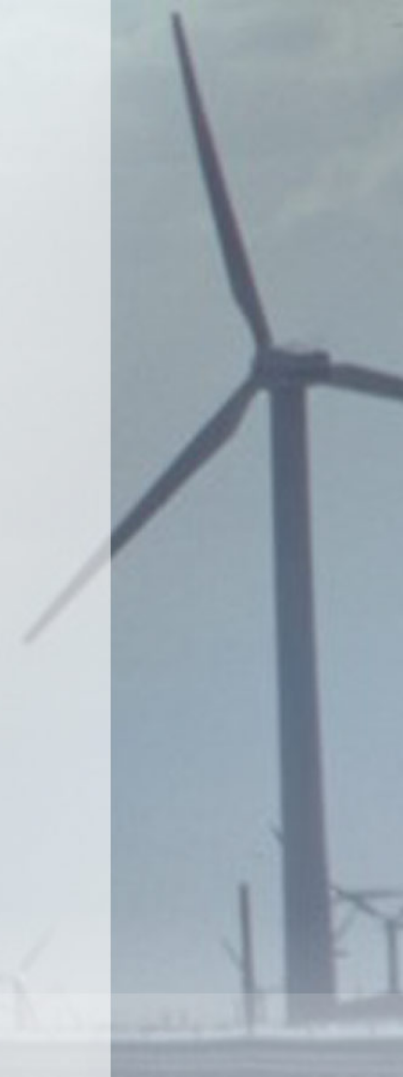


CH: 1 Client-Server Interaction



The Client/Server Environment





Advantages of a Peer-to-Peer Network

Less expensive to implement.

Does not require NOS server software.

Does not require a dedicated network administrator.

Advantages of a Client/Server Network

Provides for better security.

Easier to administer when the network is large because administration is centralized.

All data can be backed up on one central location.

Disadvantages of a Peer-to-Peer Network

Does not scale well to large networks and administration becomes unmanageable.

Each user must be trained to perform administrative tasks.

Less secure.

All machines sharing the resources negatively impact the performance.

Disadvantages of a Client/Server Network

Requires expensive NOS software such as NT, Windows 2000 server, or Novell Netware.

Requires expensive, more powerful hardware for the server machine.

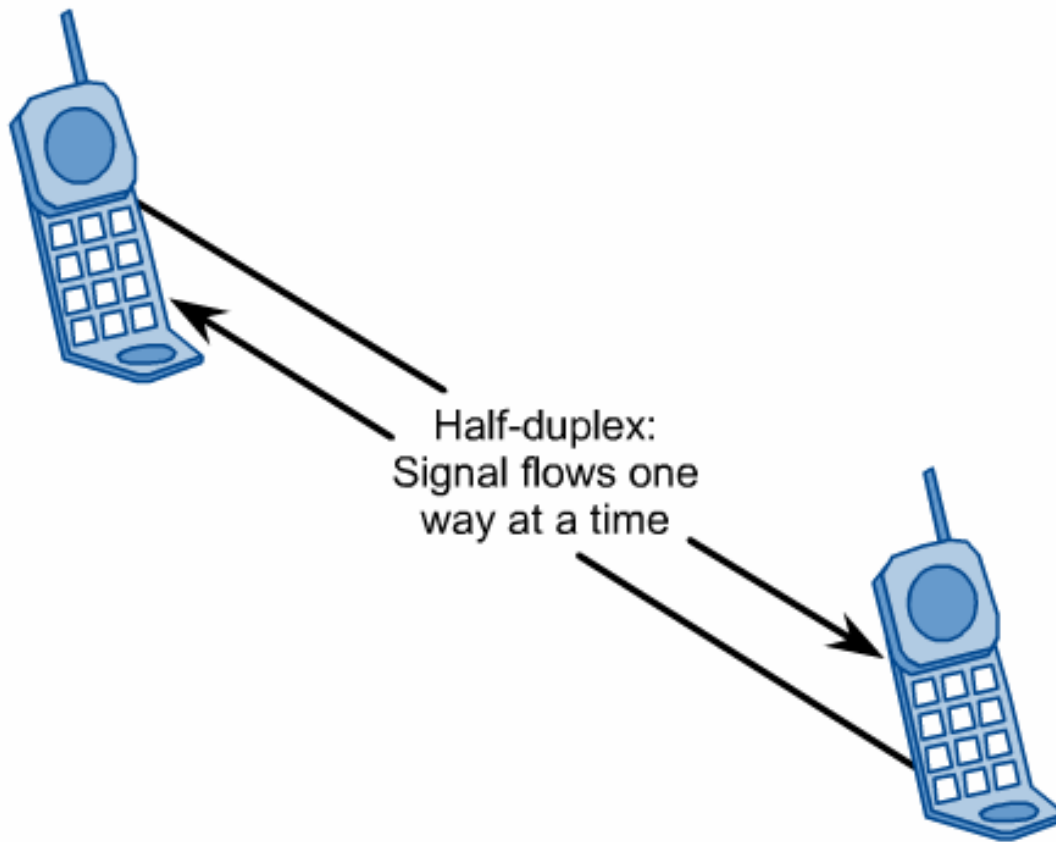
Requires a professional administrator.

Has a single point of failure if there is only one server, and user's data can be unavailable if the server is down.

Cara Transmisi Data

- ***Simpleks Line (satu arah)***
 - saluran komunikasi yang paling murah karena hanya satu arah
 - Contohnya ;
- ***Half Dupleks (dua arah bergantian)***
 - transmisi data dilakukan dalam dua arah,
 - tidak dalam waktu yang bersamaan.
 - Contohnya ;

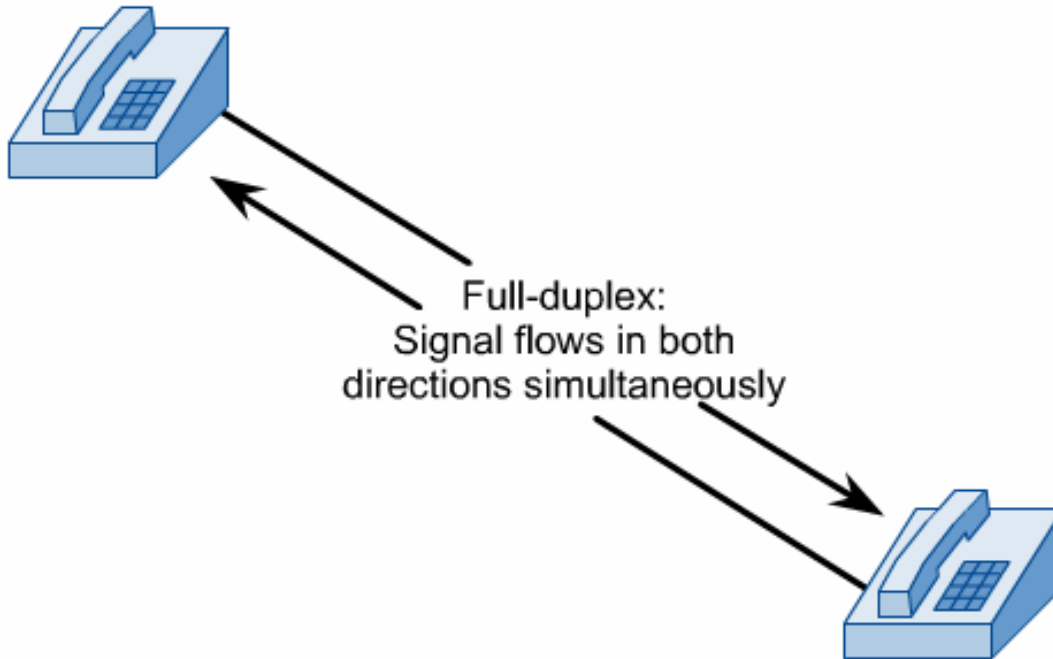
CH: 2 Half-Duplex Transmission



Half-duplex transmission enables signals to travel in either direction, but not in both directions simultaneously.

- ***Full Duflex* (Dua arah penuh)**
 - penerima dan pengirim informasi bisa secara serentak
 - Data dapat dikirim dari dua arah pada saat yang bersamaan
 - Contohnya ;

CH: 2 Full-Duplex Transmission



With full-duplex transmission, signals can travel in both directions simultaneously.