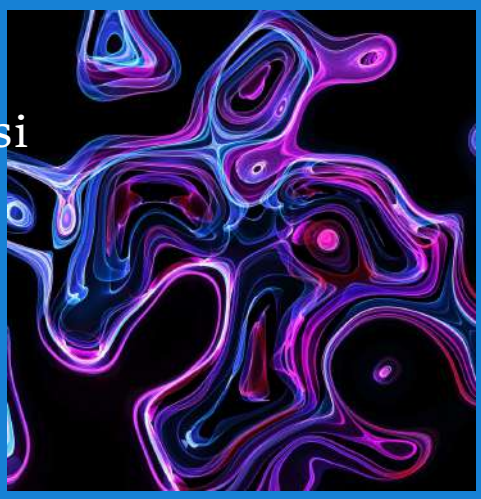
STEI-ITB

II 1200
Pengantar
Sistem dan Teknologi Informasi



Minggu 5
Komponen Sistem Informasi-1

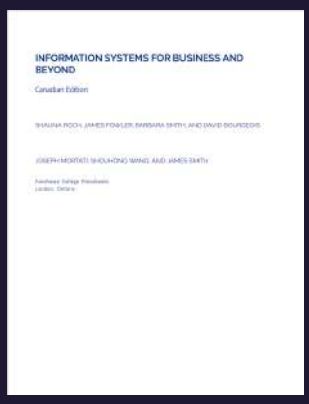
Windy Gambetta

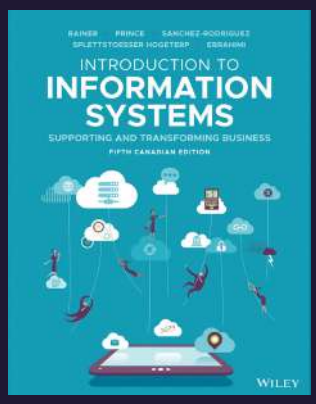
School of Electrical Engineering and Informatics, ITB

Semester 2 2024-2025

1

REFERENSI





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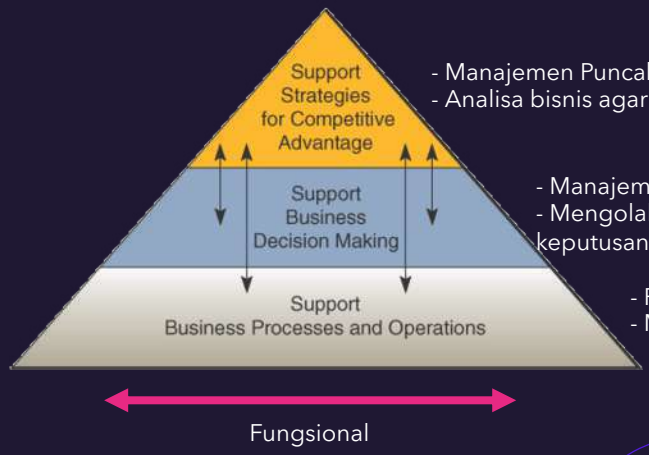
PERAN DASAR SISTEM INFORMASI



- Manajemen Puncak
- Analisa bisnis agar bisa berkompetisi

- Manajemen menengah
- Mengolah pelaporan, analisis untuk pembuatan keputusan

- Para Pelaksana
- Mengolah transaksi operasi

3

3

KOMPONEN SISTEM INFORMASI

- Teknologi (Technoware)
  - Teknologi Informasi: HW, SW, Jaringan Data (Infoware)
  - Teknologi Pendukung
- Organisasi (Organoware)
  - Struktur
  - Kebijakan
  - Prosedur Bisnis (Operasi Standard)
- Sumber Daya Manusia (Brainware)
  - Pengguna (customer, pelayan, kasir,...)
  - Pengelola (sysadmin,help desk,...)
  - Pengembang
- Sumber Daya Data

4

KOMPONEN TEKNOLOGI INFORMASI

- Teknologi yang dipergunakan untuk mengumpulkan, mengolah, menyimpan, dan mendistribusikan data dalam organisasi.

Component	Description	Example
Hardware	Physical devices that process and store data.	Servers, desktops, laptops, IoT devices.
Software	Programs and applications that run on hardware.	Operating systems, enterprise software (ERP, CRM), mobile apps.
Networking & Communication	Infrastructure that enables data exchange between systems and users.	Internet, intranet, Wi-Fi, 5G, VPN.
Cloud Computing & Virtualization	Remote data storage and computing power over the internet.	AWS, Google Cloud, Microsoft Azure.
Cybersecurity & IT Security	Technologies to protect data and systems from threats.	Firewalls, encryption, multi-factor authentication (MFA).

5

KOMPONEN TEKNOLOGI INFORMASI

- Teknologi informasi yang meliputi H/W, S/W, jaringan, dan infrastruktur TI yang memungkinkan pengumpulan, pemrosesan, penyimpanan, dan distribusi data/

Component	Description	Example
Hardware	Physical devices that process and store data.	Servers, desktops, laptops, IoT devices.
Software	Programs and applications that run on hardware.	Operating systems, enterprise software (ERP, CRM), mobile apps.
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6

6

KOMPONEN TEKNOLOGI PENDUKUNG

- Teknologi lain yang dipergunakan untuk membantu proses perencanaan, pengembangan dan operasi Sistem Informasi.

Component	Description	Example Use Cases
Physical Security Systems	Protects IS infrastructure from unauthorized access and damage.	Server room doors, biometric locks, security cameras.
Power Supply & Backup	Ensures continuous IS operations and prevents data loss.	UPS, backup generators, power stabilizers.
Cooling & Environmental Controls	Maintains optimal conditions for IS hardware.	Air conditioning, humidity control, fire suppression systems.
Office & Workstation Equipment	Enhances user interaction with IS.	Ergonomic chairs, adjustable desks, monitor stands.
Communication & Collaboration Tools	Facilitates interaction with IS and remote access.	Whiteboards, conference room projectors, video conferencing hardware.

7

7

Hardware

Physical components of a computer consists of

- Central processing unit (CPU)
  - Manipulates the data and controls the tasks performed by the other components.
- Primary storage
  - Temporarily stores data and program instructions during processing.
- Secondary storage
  - Stores data and programs for future use.
- Input technologies
  - Accept data and instructions and convert them to a form that the computer can understand.

8

Hardware

- Input technologies
  - Accept data and instructions and convert them to a form that the computer can understand.
- Output technologies
  - Present data and information in a form people can understand.
- Communication technologies
  - Provide for the flow of data from external computer networks (e.g., the Internet and intranets) to the CPU, and from the CPU to computer network

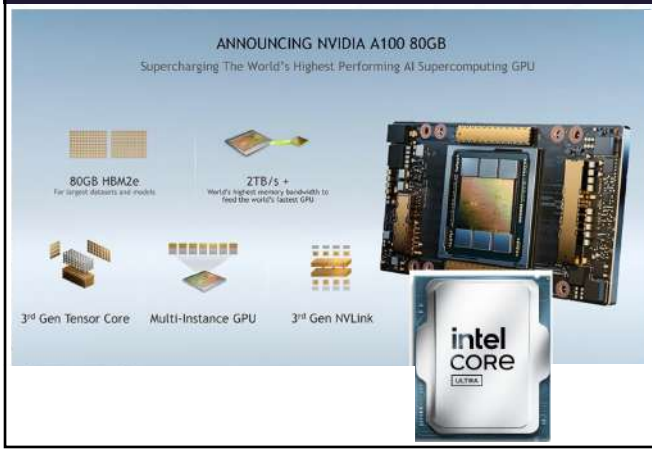
9

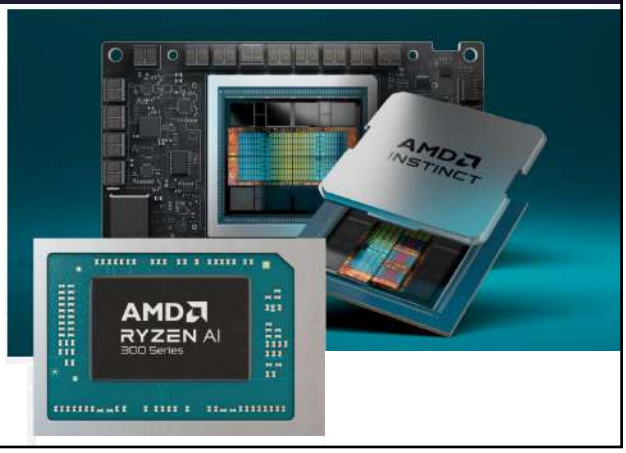
Hardware

Component	Speed measured by	Units	Description
CPU	Clock speed	GHz (billions of cycles)	Hertz indicates the time it takes to complete a cycle.
Motherboard	Bus speed	MHz	The speed at which data can move across the bus.
RAM	Data transfer rate	Mb/s (millions of bytes per second)	The time it takes for data to be transferred from memory to system measured in Megabytes.
Hard Disk	Access time	ms (millisecond)	The time it takes for the drive to locate the data to be accessed.
	Data transfer rate	MBit/s	The time it takes for data to be transferred from disk to system.

10

Hardware: GPU & CPU





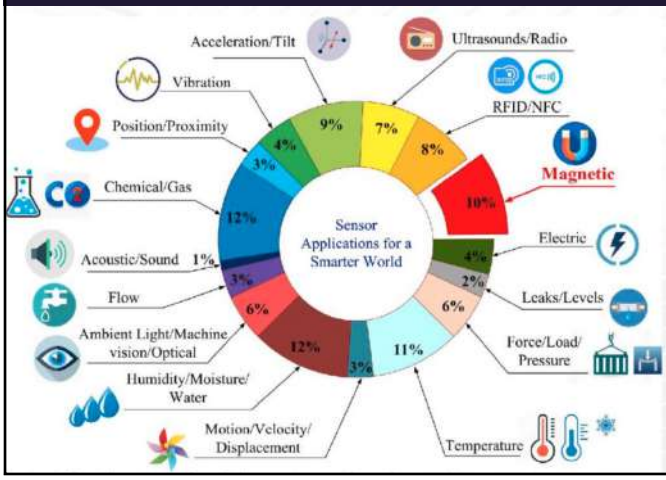
11

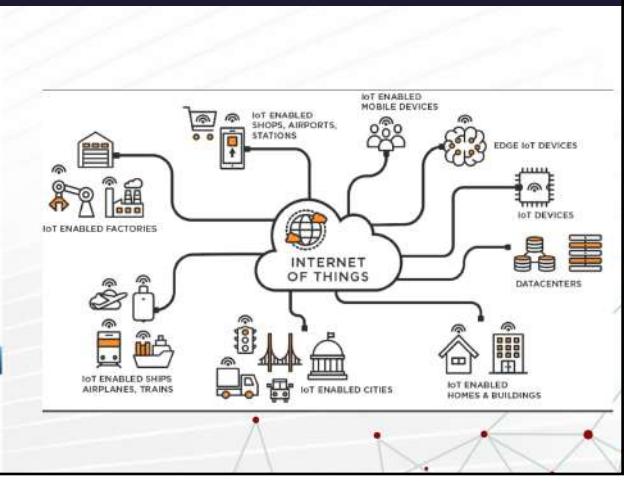
Hardware: Input Devices

- Accept data and instructions and convert them to a form that the computer can understand.

12

Hardware: IoT & Interconnected

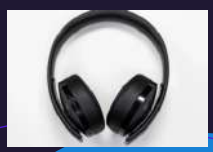


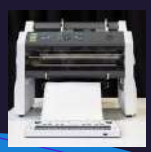


13

Hardware: Output Devices

- Hardware component of the computer system that display information to users.





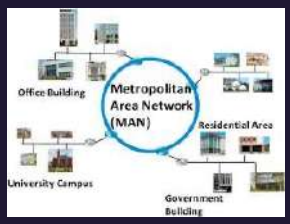
14

Computer Network

- A network set up by connecting two or more computers and other supporting devices through communication channels.
- A network enables computers to communicate with each other by sharing commands, data, etc, including hardware and software resources.

15

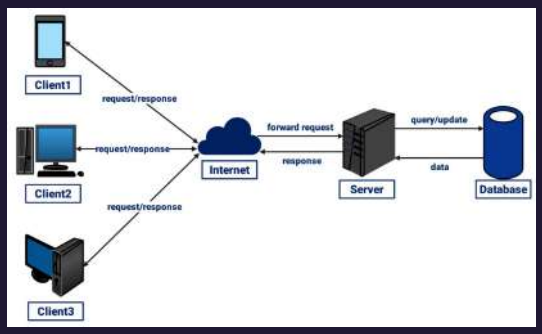
Types of Computer Network

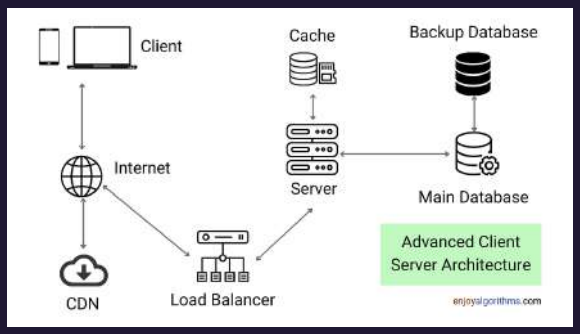


Internetworking: A process to connect two or more networks together using the devices configured by a local addressing scheme

16

Client-Server

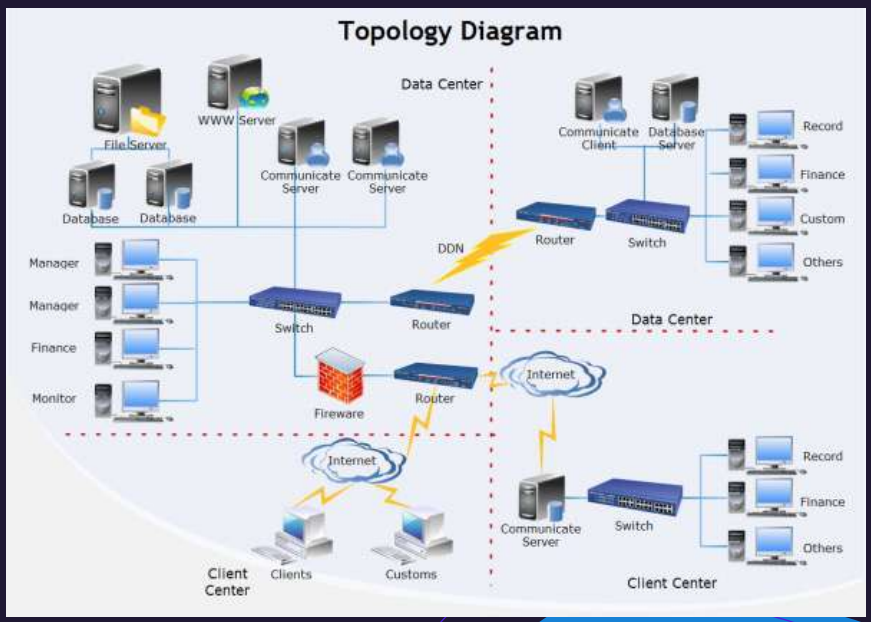




- Jaringan komputer yang terdiri dari satu atau lebih komputer yang saling melayani.
- Komputer yang melayani disebut server, sedangkan komputer yang dilayani disebut client.

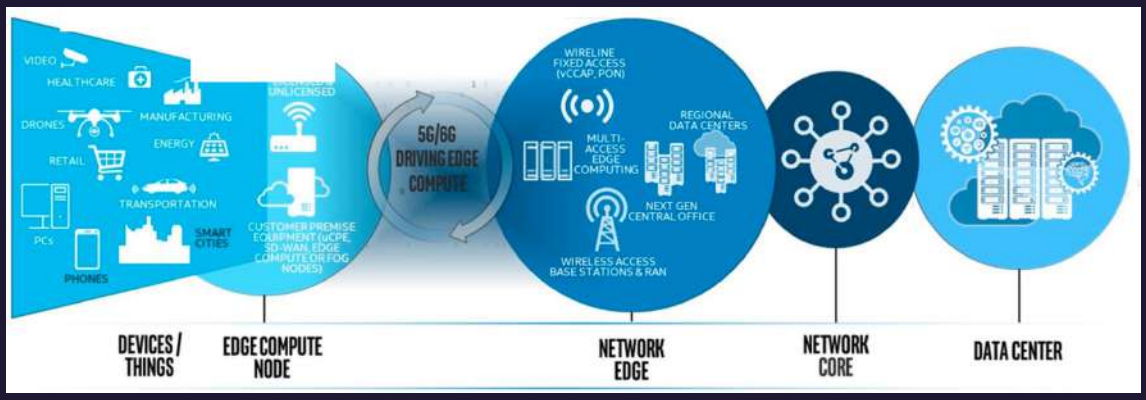
17

Topology Diagram



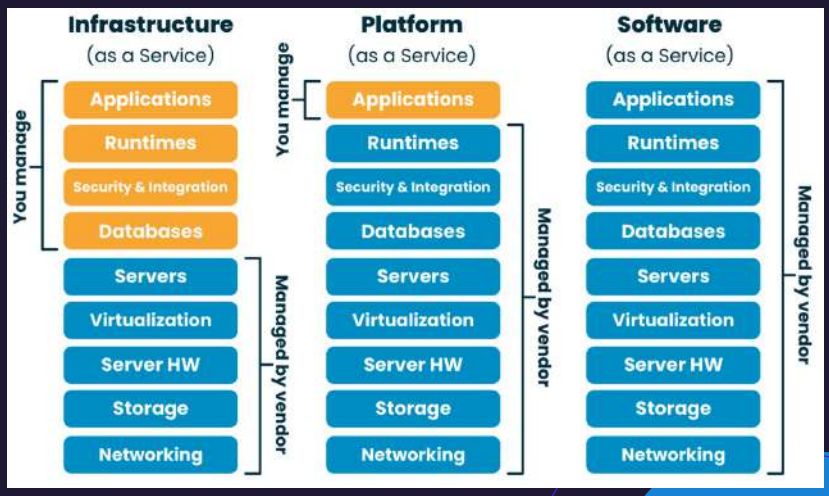
18

5G, 6G, Edge Computing



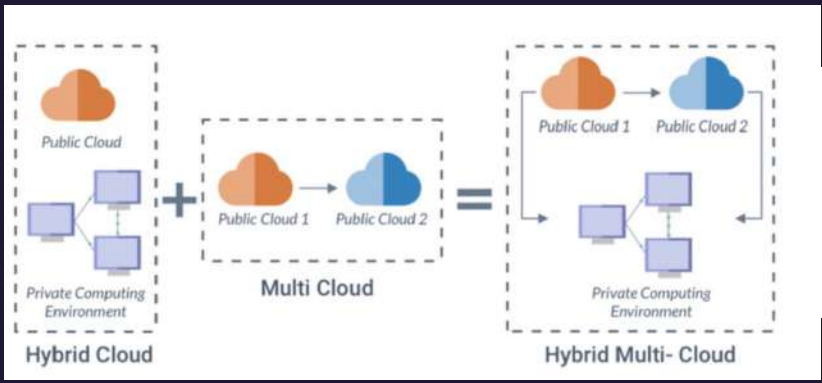
19

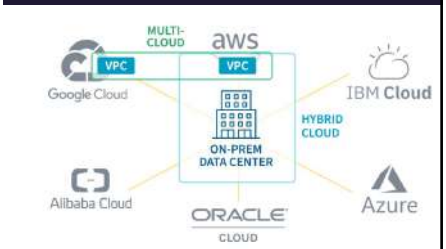
Cloud Computing: IaaS, PaaS, SaaS



20

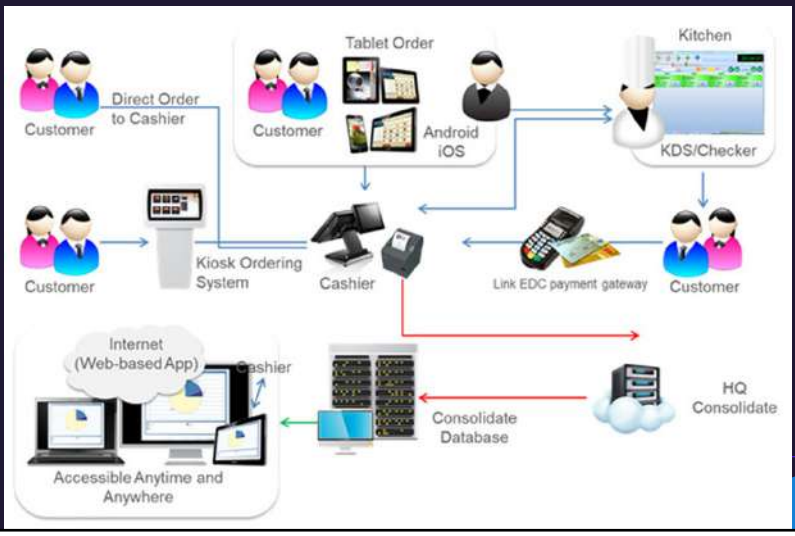
Cloud Computing





21

Case: Restaurant



Hardware?

Network?

22