2.Cloud Computing

Definition:

- Cloud computing is the delivery of computing services over the internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale.

Key Points:

1. **Traditional Approach:**
   - Previously, companies needed to maintain their servers, networking, storage, and cooling systems on-premise. This required a lot of resources.
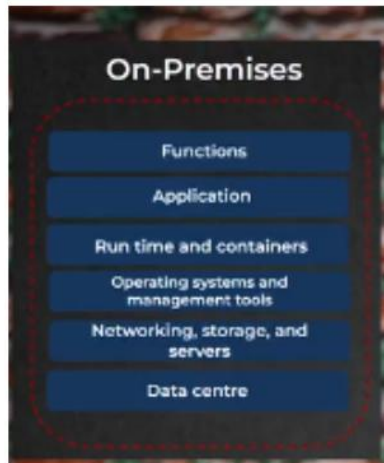2. **Cloud Model:**
   - Companies like **AWS, GCP, Azure** provide cloud services from remote data centers.
   - This removes the burden of managing physical infrastructure.
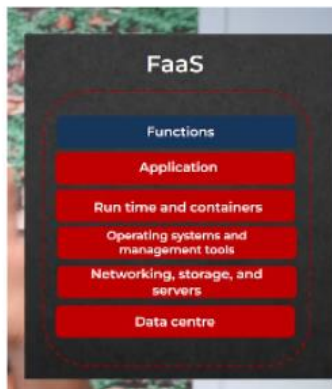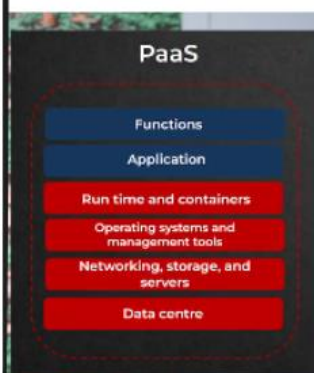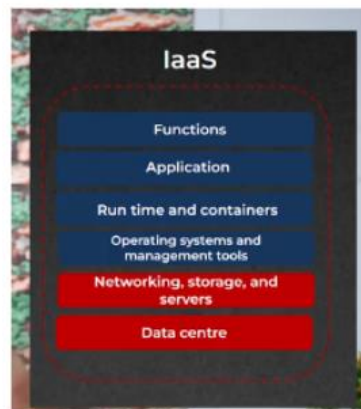3. **Cloud Service Models:**
   - **IaaS (Infrastructure as a Service)**: Provides virtualized computing resources (e.g., servers, storage, networking).
   - **PaaS (Platform as a Service)**: Offers hardware and software tools over the internet (e.g., databases, development frameworks).
   - **SaaS (Software as a Service)**: Delivers applications over the internet (e.g., Gmail, Salesforce).
   - **FaaS (Function as a Service)**: Serverless computing that allows developers to run code without managing servers (e.g., AWS Lambda).

Example:

- In cloud computing, a developer can deploy an application without managing the underlying hardware (as in traditional on-premise setups).

On-Premises

- Functions
- Application
- Run time and containers
- Operating systems and management tools
- Networking, storage, and servers
- Data centre

Service model:

IaaS

- Functions
- Application
- Run time and containers
- Operating systems and management tools
- Networking, storage, and servers
- Data centre

CaaS

- Functions
- Application
- Run time and containers
- Operating systems and management tools
- Networking, storage, and servers
- Data centre

PaaS

- Functions
- Application
- Run time and containers
- Operating systems and management tools
- Networking, storage, and servers
- Data centre

FaaS

- Functions
- Application
- Run time and containers
- Operating systems and management tools
- Networking, storage, and servers
- Data centre

SaaS

- Functions
- Application
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off-premise