



## THE ICT UNIVERSITY

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## Project :cloud computing

### DEFINITION:

A CLOUD SERVER is a powerful virtual computer that runs on the internet instead of on your personal device .Its stores , manages and processes data remotely inside massive DATA CENTERS owned by companies like :

- 
- **Amazon web services(AWS)**
- **Microsoft Azure**
- **Google Cloud**
- **IBM Cloud**

1. In order words , a cloud server refers to a virtual server that operates within a cloud computing environment, providing scalable and on-demand computing resources over the Internet. Cloud servers are hosted and managed by cloud service providers such as Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP), and IBM Cloud.

Cloud servers are built on a foundation of physical servers, storage devices, and networking equipment, all of which are virtualized. Users only pay for

the resources they actually use, such as processing power, memory, and storage — making cloud computing both cost-effective and efficient.

## **Some common features of cloud servers**

### ***On-Demand Scalability:***

Cloud servers can easily scale up or down based on workload requirements. This means computing power, storage, and memory can be increased or decreased automatically or manually as needs change.

### ***High Availability:***

Cloud servers are designed for continuous operation, minimizing downtime and ensuring that applications remain accessible.

## **Cloud technology has completely transformed how we live, work, and communicate.**

1. **Easy Storage and Backup:** We can store files safely online using Google Drive, Dropbox, or iCloud. Also No need for USB drives — your data is accessible anywhere.
2. **Business Growth:** Companies no longer need to buy expensive hardware . Moreover, They rent cloud servers for hosting websites, apps, or databases — saving costs and energy.
3. **Remote Work & Collaboration:** Tools like Microsoft 365, Zoom, and Google Workspace allow people to work from anywhere.

Also, teams can edit the same document in real time — even from different countries!

4. **Security And Reliability:** Cloud providers use strong encryption and backups to protect data from loss or damage that is Even if your device breaks, your information stays safe online.

## **Real-World Examples:**

- **Kenya Power:** Uses cloud analytics for billing and outage management.
- **Tesla Powerwall & SolarCity:** Use cloud AI to manage household solar power efficiently.
- **India:** Uses cloud-based smart grids to manage millions of meters remotely.

## **2. One of the problem I notice in my community is all about electricity (light failure)**

cloud server can help solve this problem in the following way

Electricity powers every part of modern life be it homes, hospitals, industries, and communication. **Cloud computing** offers digital solutions for managing, monitoring, and optimizing electricity systems.

## **KEY PROBLEMS : ELECTRICAL FAILURE AND ENEFFICIENTCY**

Frequent blackouts due to poor grid management.

Lack of real-time monitoring of power supply and usage.

Difficulty detecting faults or illegal connections.

High operational costs and energy waste.

Lack of data for planning and maintenance.

## **How Cloud Computing Or Services Solves These Problems**

### **a. Data Backup And Recovery:**

Cloud server automatically back up your files and systems. If power failure causes local corruption or data loss , the cloud lets you restore everything easily.

EXAMPLE: Google Drive or OneDrive automatically save your progress every few seconds.

## **b. Remote Data Access:**

Even if your local power fails , your data stored in the in the cloud remains safe and available. That is when electricity returns or if you move to a power location you can continue access where you stop .

EXAMPLE: if your office machine shut down you can still access your files from your phone or another location with power

## **c. Business Continuity:**

Organization uses CLOUD\_BASED SYSTEM , that is an online database server that keep operating even during local blackout as long as staff can access the internet from another power device or area.

EXAMPLE : A Company's main office may lose power ,but employees in other cities or countries can keep working normally

## **d. Automatic Power Redundancy at Data Centers :**

Cloud server or providers like the Amazon Web Services (AWS) or Microsoft Azure have massive data centers with

- Backup Generators
- Battery System
- Redundancy Power Line

Which then implies that your online services stay running 24/7 even if there is an electrical failure in your region

ASPECT	OLD WAY	CLOUD WAYS
Storage	On your computer	Online ,accessible anywhere and anytime
Work	In one office	From anywhere ,anytime you choose . ie its can be acces in devices that is available.

Cost	Buy servers	Rent as needed
Apps	Installed locally	Streamed from the cloud

## Challenges and Solution Encountered with our physical set up and cloud services

challenges	Cloud solutions
Local power outage	Data remains online and accessible from anywhere
Data loss to shutdown	Automatic cloud backup
Local servers going offline	Cloud servers continue running
Expensive power equipment	Use cloud computing instead of local infrastructure
High Cost and more Risky	Pay only what you consumed and less Risky



CLOUD SERVER

**FROM THE DIAGRAM ABOVE**

NB: We notice that with our cloud computing things are easier and fast because with any electrical or breakdown by any device our informations are stored and secured in the cloud, also can be access anywhere and anytime .