Cloud Computing

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CSI ZG527/ SE ZG527 – Cloud Computing – L1

Agenda

- ✓ Cloud Vs Grid
- ✓ Cloud Computing
- ✓ Cloud Computing Architecture
  - ✓ Characteristic of Cloud Computing
  - ✓ Services of Cloud Computing
  - ✓ Deployment of Cloud Computing
- ✓ Cloud Applications

Cloud Vs Grid

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Aspect	Cloud Computing	Grid Computing
Definition	A model that provides on-demand access to shared computing resources (e.g., servers, storage, applications) over the internet.	A distributed system where multiple computers work together to perform large-scale tasks, often spread across different locations.
Resource Ownership	Resources are centralized and owned/managed by a cloud service provider (e.g., AWS, Azure, Google Cloud).	Resources are decentralized and can be owned by different organizations or individuals.
Scalability	Highly scalable; resources can be dynamically provisioned and de-provisioned as needed.	Scalability is limited to the number of participating systems and their combined capacity.

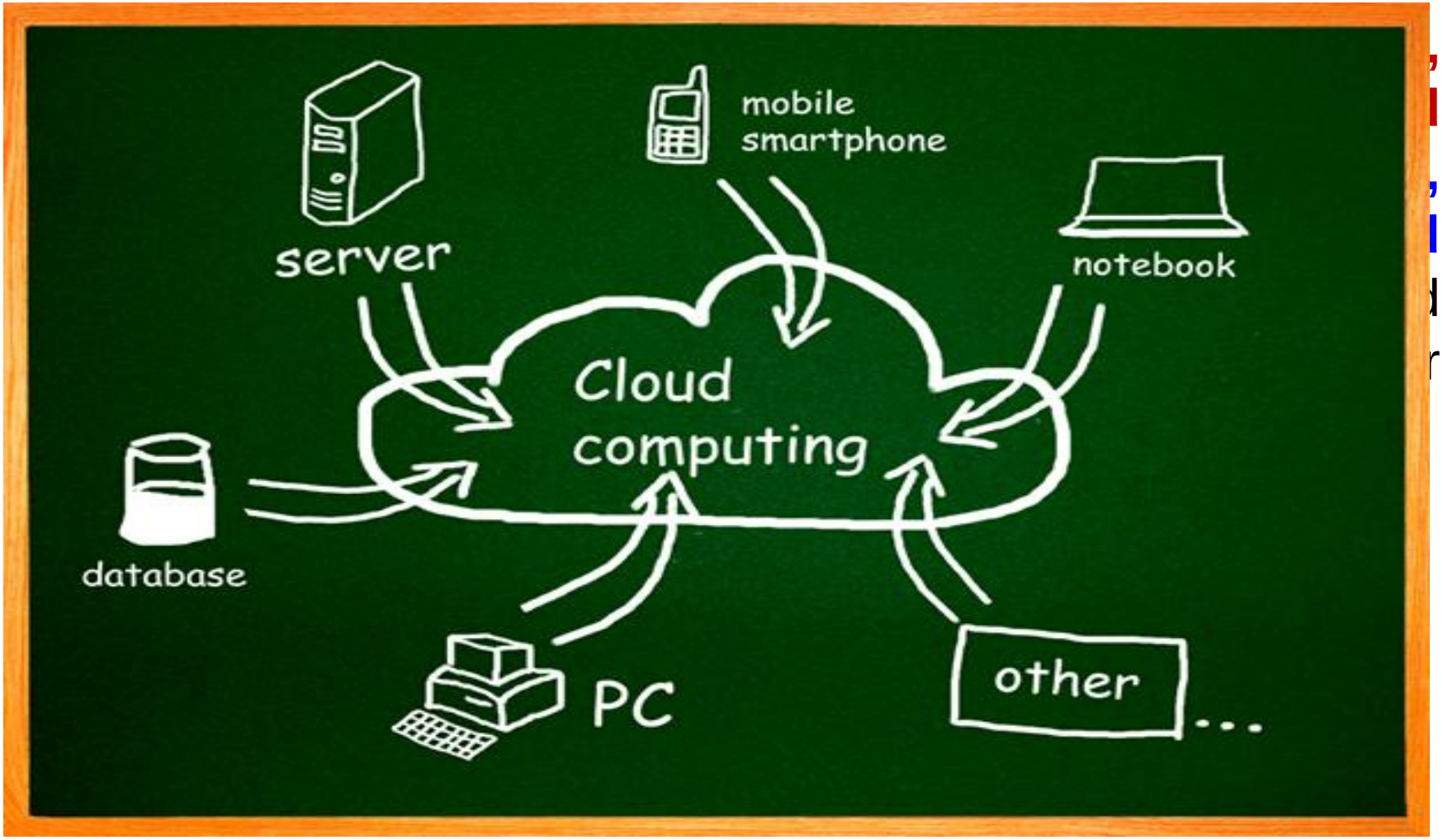
Cloud Vs Grid

Aspect	Cloud Computing	Grid Computing
Accessibility	Provides access through the internet; users interact with services using web interfaces or APIs.	Access is managed through specific middleware or software to coordinate the distributed systems.
Usage	Typically used for hosting applications, data storage, development platforms, and on-demand computing.	Typically used for solving computationally intensive problems like scientific simulations, data processing, and research projects.
Cost Model	Pay-as-you-go model; users pay based on the usage of resources (time, storage, processing).	Costs are often shared among participants, as grid computing uses available resources contributed by members.

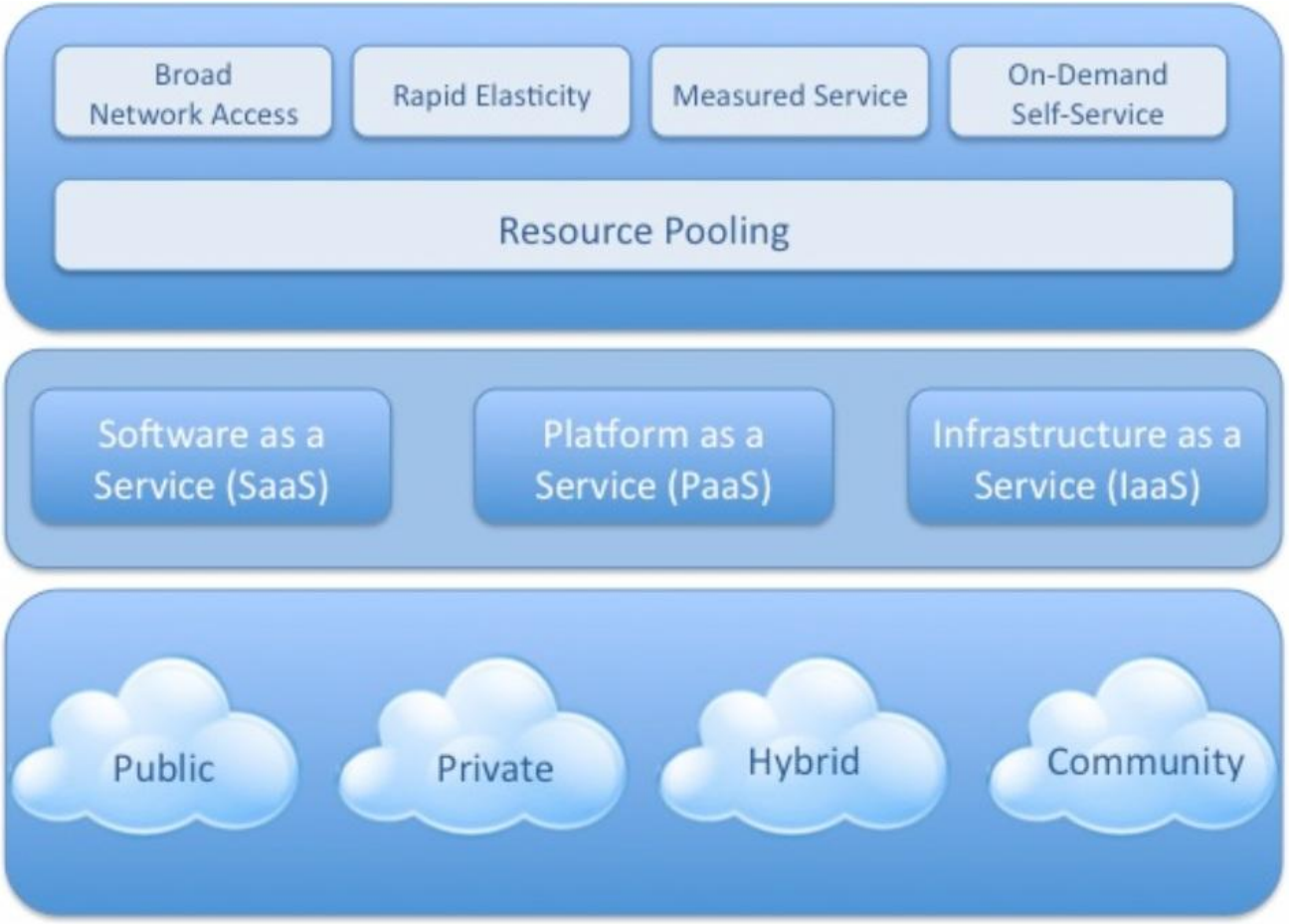
Cloud Vs Grid

Aspect	Cloud Computing	Grid Computing
Fault Tolerance	High fault tolerance; cloud providers have redundant systems to ensure reliability.	Fault tolerance depends on the design of the grid and the reliability of individual components.
Ease of Use	Easier to use for non-experts; requires minimal technical setup and maintenance.	Requires more technical knowledge to configure and manage the distributed network.
Examples	Amazon Web Services (AWS), Microsoft Azure, Google Cloud, IBM Cloud.	SETI@home, BOINC (Berkeley Open Infrastructure for Network Computing), Folding@home.

Cloud Computing



Cloud Computing Architecture



Essential Characteristics

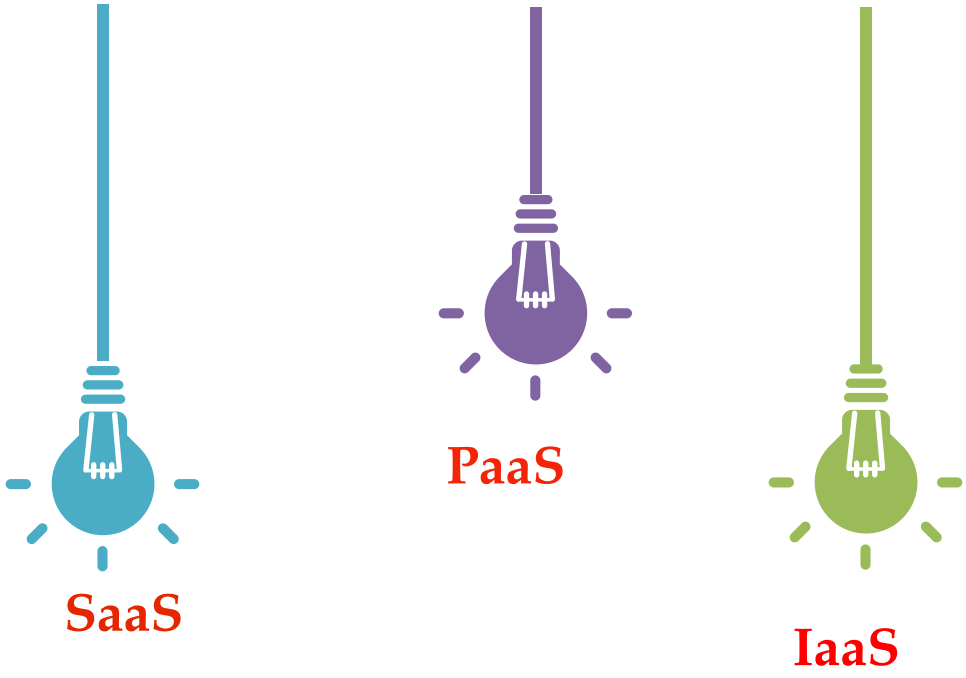
Service Models

Deployment Models

Essential Characteristics

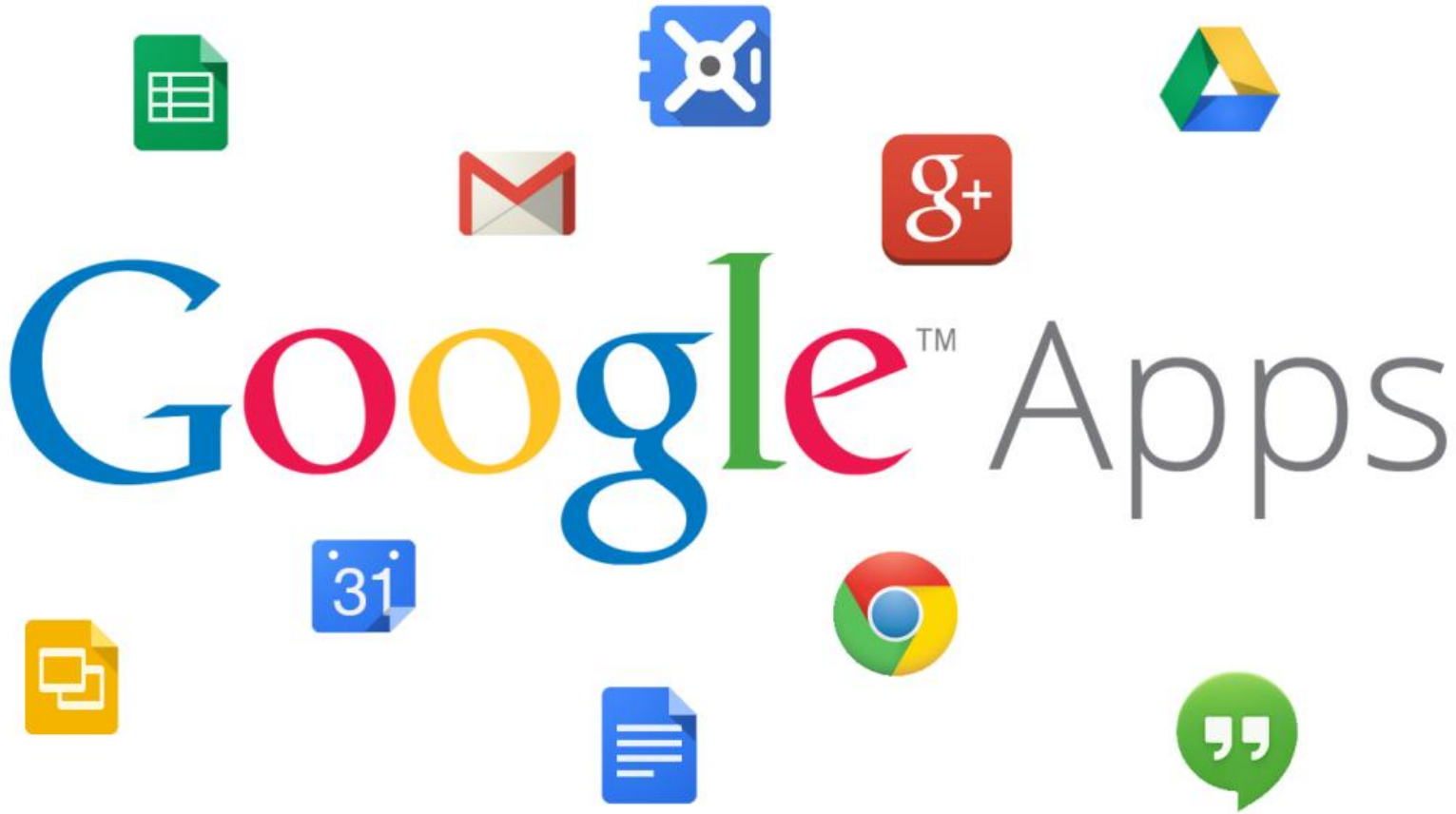
- ✓ **On-demand self-service**
  - ✓ Services accessed through a **self-serve web interface.**
- ✓ **Broad network access**
  - ✓ Available from **anywhere with an internet connection.**
- ✓ **Resource pooling**
  - ✓ **Resources are drawn from a common pool**.
- ✓ **Rapid elasticity**
  - ✓ Resources **dynamically-allocated between users**.
- ✓ **Measured Service**
  - ✓ Customer will **pay what they have used**.

Service Models



Software as a Service (SaaS)

- ✓ Software as a service is a model in **which an application is hosted as a service to the customer who access it via internet.**



Platform as a Service (PaaS)

- ✓ Platform as a service supplies all **the resources to build applications and service from the internet, without having to download or install the software**

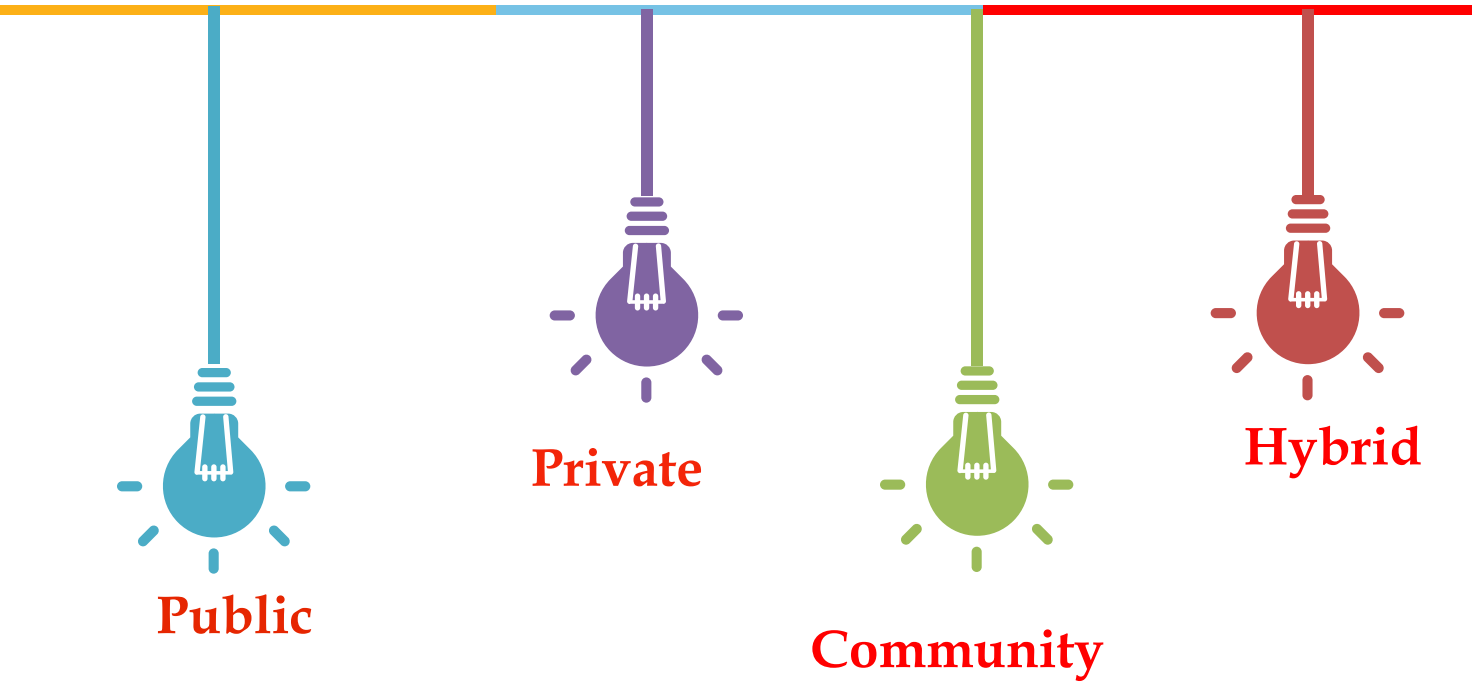
Infrastructure as a Service (IaaS)

- ✓ Hardware as a service is another form of service available in cloud computing. Where PaaS, SaaS provides application to customer, but Hardware doesn't. It simply offers **Hardware so that your organisations can put whatever they want to onto it.**

X as a Service (XaaS)

- ✓ It refers to the **increasing number of available services**
- ✓ **Example**: **Identity, Database, Desktop, Security and Access Control**

Deployment Models



Public Cloud

- ✓ A Public Cloud is a cloud which is available to the **general public**, and resources are **allocated in a pay-as-you-go manner.**
- ✓ **Example: Amazon Web Service, Google Cloud**

Private Cloud

- ✓ A Private cloud is an **internal cloud that is built and operated by a single organization**.
- ✓ **Example: Eucalyptus, Open stack, Cloud Stack**

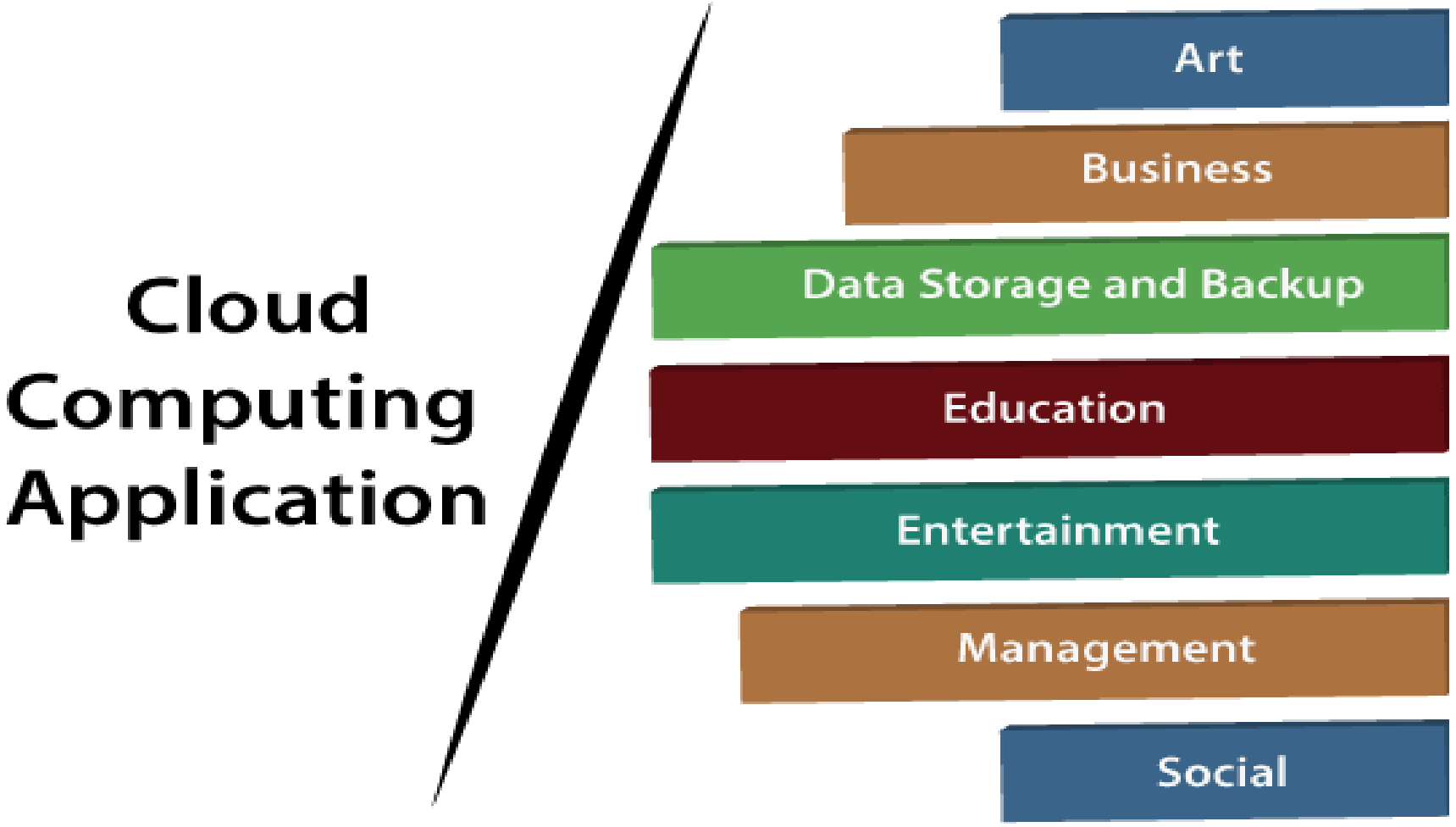
Community Cloud

- ✓ The Cloud Infrastructure is shared by **several organizations and supports a specific Community that has shared concerns.**
- ✓ **Example: Google Apps for Government, Microsoft Government Community Cloud**

Hybrid Cloud

- ✓ Hybrid Cloud is a combination of **both public and private cloud.**
- ✓ **Example Windows Azure, VMware vCloud**

Cloud Applications



Art

- ✓ Cloud computing offers various art applications for quickly and easily design **attractive cards, booklets,** and **images**.
- ✓ **Example: Moo, Vistaprint, Adobe Creative Cloud**

Business

- ✓ Business applications are based on **cloud service providers.** Today, every organization requires the cloud business application to grow their business..
- ✓ **Example: Salesforce, Chatter, Paypal**

Data Storage and Backup Applications

- ✓ Cloud computing allows us to store information **(data, files, images, audios, and videos)** on the cloud and access this information using an internet connection.
- ✓ **Example: Box.com, Google G Suite**

Education

- ✓ Cloud computing in the education sector becomes very popular. It offers various **online distance learning platforms and student information portals to the students.**
- ✓ **Example: Google Apps for Education, AWS in Education**

Entertainment

- ✓ Entertainment industries use a **multi-cloud strategy to interact with the target audience**
- ✓ **Example: Online Games, Video Conference Apps**

Management

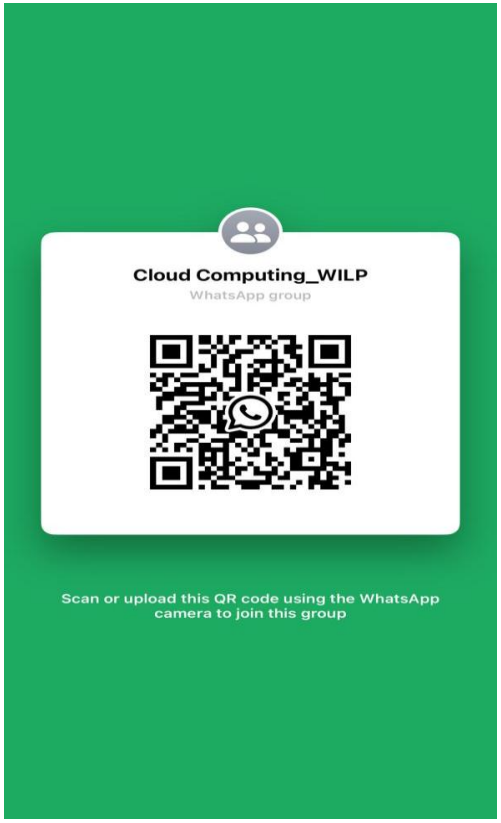
- ✓ Cloud computing offers various cloud management tools which help admins to **manage all types of cloud activities, such as resource deployment, data integration, and disaster recovery**.
- ✓ **Example: Outright, GoToMeeting**

Social Media

- ✓ Social cloud applications allow a **large number of users to connect with each other using social networking.**
- ✓ **Example: Twitter, LinkedIn, Facebook etc**

Group Link

https://chat.whatsapp.com/KIexVsKK4u247tsqUqPmF4



Thank You