



# SNS COLLEGE OF TECHNOLOGY



(An Autonomous Institution)

Re-accredited by NAAC with A+ grade, Accredited by NBA(CSE, IT, ECE, EEE & Mechanical)  
Approved by AICTE, New Delhi, Recognized by UGC, Affiliated to Anna University, Chennai

## DEPARTMENT OF COMPUTER APPLICATIONS

### COURSE

23CAE717  
Cloud Computing

### UNIT I

Cloud Architecture  
and Model

### TOPIC

Public vs Private Cloud  
– Cloud Solutions

### Semester

II Semester /  
I MCA



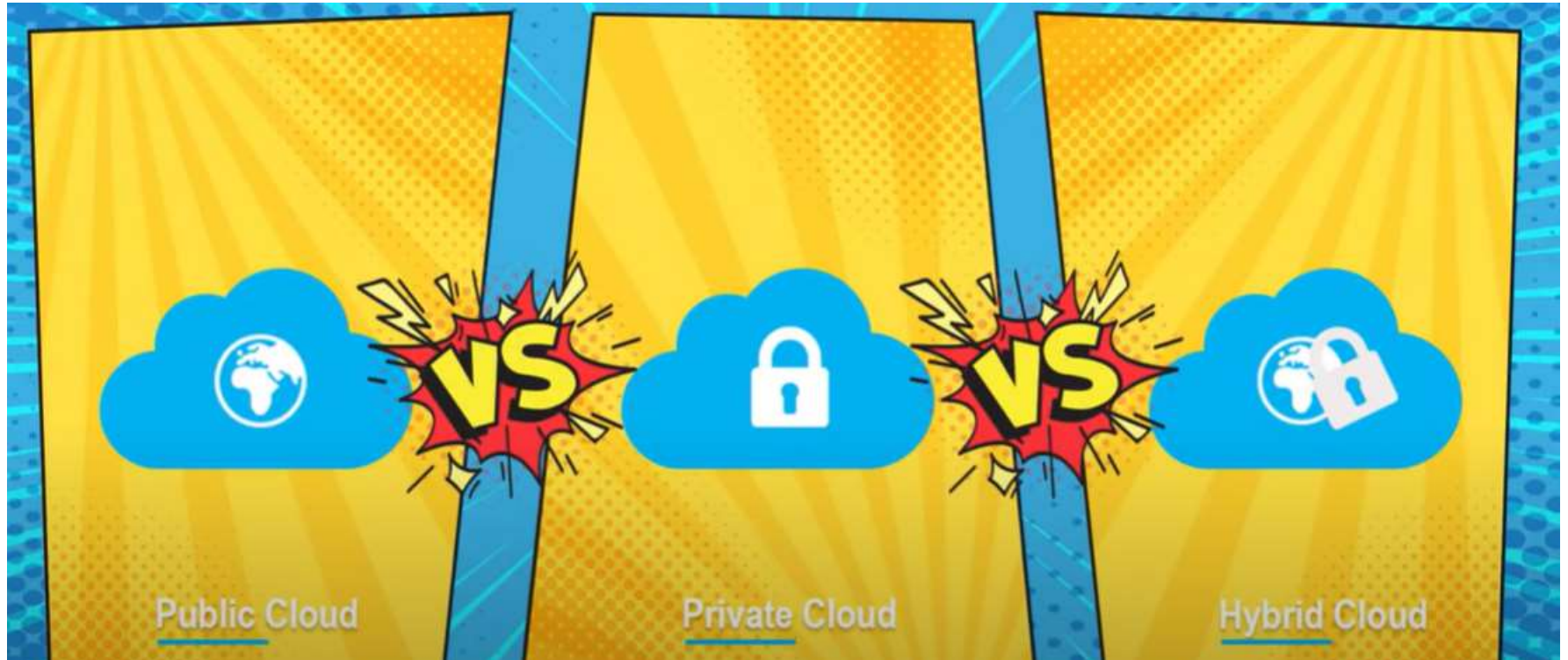
# UNIT I NETWORK TECHNOLOGIES



- ❖ Technologies for Network-Based System
- ❖ System Models for Distributed and Cloud Computing
- ❖ NIST Cloud Computing Reference Architecture
- ❖ Cloud Models:- Characteristics – Cloud Services Cloud models (IaaS, PaaS, SaaS)
- ❖ Public vs Private Cloud –Cloud Solutions
- ❖ Cloud ecosystem
- ❖ Service management
- ❖ Computing on demand



# Public vs Private Cloud





# Definition



## Public

The cloud computing infrastructure is located on the premises of the company that offers the services



## Private

Private cloud means using a cloud infrastructure only by one customer/organization, and it is not shared with others



## Hybrid

A Hybrid cloud uses both public and private clouds based on the purpose and requirements





# Use Case



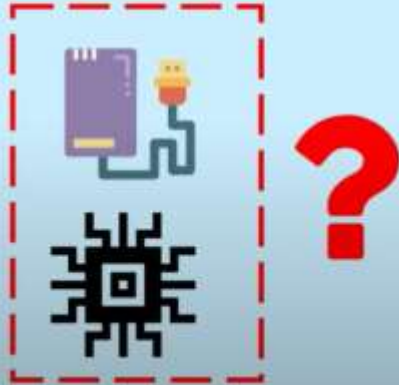
**Public**

**Problem**  
Insufficient data storage and duplication



**Private**

**Problem** - Special hardware configurations or specifications



**Hybrid**

**Problem**  
Handling peak traffic





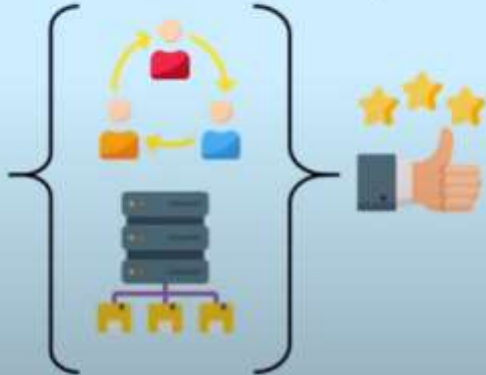
# Use case Result



## Public

### Result

Using the public cloud, expands the sharing and syncing capacities, making it more accessible and backup of data is much simpler



## Private

### Result

Private cloud fetches hardware as per the requirements of an application



## Hybrid

### Result

Hybrid cloud manages traffic levels during peak usage periods







# Service Providers



## Public

The cloud computing infrastructure is located on the premises of the company that offers the services



**GlobalDots**  
We Make IT Faster

GlobalDots is one of the companies that offers worldwide public cloud services

## Private

Private cloud means using a cloud infrastructure only by one customer/organization, and it is not shared with others



Dell is one of the companies that offers private cloud services

## Hybrid

A Hybrid cloud uses both public and private clouds based on the purpose and requirements



IBM is one of the companies that offers hybrid cloud services



# Tenancy



## Public

Multi-tenancy; data of a many organization stored in a shared environment



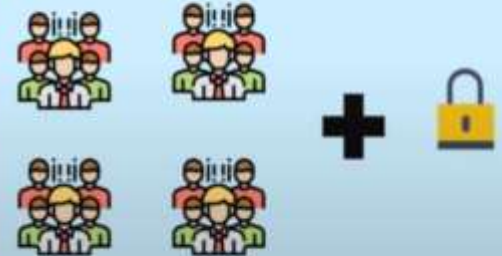
## Private

Single tenancy; data of a single organization stored in the cloud



## Hybrid

The data stored in a public cloud is multi-tenant, and it is kept secure/private with the help of private cloud





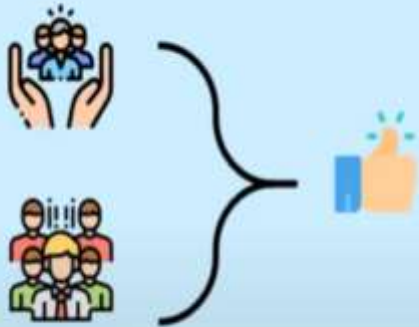


# Explore to Public



## Public

Anyone can use public cloud services



## Private

Only the organization can use private cloud services



## Hybrid

The services running on private cloud user can be accessed only by the organization



Anyone can access the services running on a public user





# Data Center Location



## Public

On the internet where the cloud service providers are available



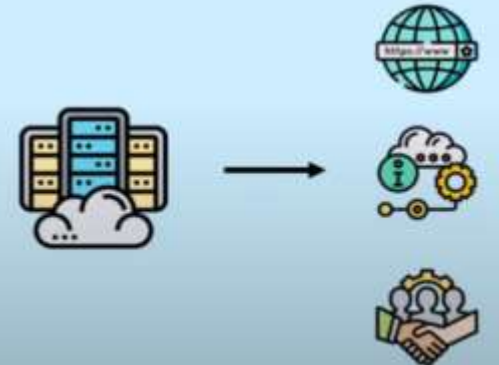
## Private

Inside the organization network



## Hybrid

Inside the organization for private cloud services and anywhere on the internet for public cloud services





# Cloud Service Provider



## Public

The Cloud service provider manages the services whereas the organization uses them



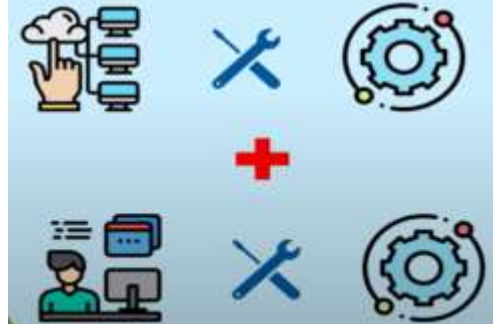
## Private

The organizations need to have their administrators to manage private cloud services



## Hybrid

The organization operates the private cloud whereas cloud service providers manage the public cloud



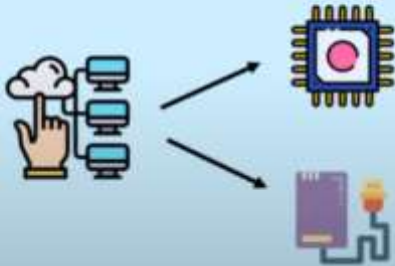


# Hardware Components



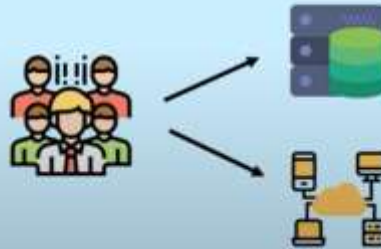
## Public

The Cloud service provider provides all the hardware's and ensures its working properly



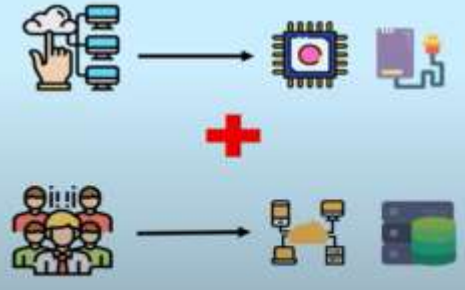
## Private

The organization offers hardware, it buys all physical servers on which the cloud is built



## Hybrid

The organization provides hardware for private cloud whereas the Cloud service provider provides all the hardware for the public cloud





# Expenses



## Public

The Cloud service provider provides the hardware, sets-up the application and provides the network



## Private

Hardware and network must be provided by the organization, and hence it becomes expensive



## Hybrid

The organization must provide hardware and network for private cloud, and the Cloud service provider does all the installation for the cloud, so the cost is moderately fair







# Top Companies







# Difference



| Parameters\Type    | Public Cloud  | Private Cloud  | Hybrid Cloud   | Community Cloud  |
|--------------------|---|--|--|--|
| <b>Description</b> | In public cloud, services are available for public users. | Private cloud is build up with existing private infrastructure. This type of cloud has some authentic users who can dynamically provision the resources. | Hybrid cloud is a heterogeneous distributed system, resulting from a private cloud, which incorporates different types of services and resources from public clouds. | Different types of cloud are integrated together to meet a common or particular need for some organizations. |
| <b>Scalability</b> | Very High   | Limited  | Very High  | Limited  |
| <b>Reliability</b> | Moderate  | Very High  | Medium to High   | Very High  |
| <b>Security</b>    | Totally Depends on service provider                       | High class security  | Secure   | Secure   |
| <b>Performance</b> | Low to medium   | Good   | Good   | Very Good  |
| <b>Cost</b>        | Cheaper   | High Cost  | Costly   | Costly   |
| <b>Examples</b>    | Amazon EC2, Google AppEngine                              | VMWare, Microsoft, KVM, Xen  | IBM, HP, VMWare vCloud, Eucalyptus   | SolaS Community Cloud, VMWare  |



# Cloud Solutions



- 1.On-demand self-service:** Decision of starting and stopping service depends on customers without direct interaction with providers.
- 2.Broad Network Access:** Service must be available to any device using any network.
- 3.Resource Pooling:** Provider creates a pool of resources and dynamically allocates them to customers.
- 4.Rapid Elasticity:** The services provided by the provider must be easily expandable and quick.
- 5.Measured Services:** Provider must measure the usage of service and charge it accordingly. Tracking usage is also helpful in improving services.



# REFERENCES

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- ❑ Toby Velte, Anthony Velte, Robert Elsenpeter, “Cloud Computing, A Practical Approach”, TMH, 2009.
- ❑ John W.Rittinghouse and James F.Ransome, “Cloud Computing: Implementation, Management, and Security”, CRC Press, 201



ANY  
QUERIES ?