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CLOUD COMPUTING

How Cloud Computing Reduces Costs and Increases Efficiency

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COURSE INTRODUCTION

Cloud Computing is the delivery of computing services such as servers, storage, databases, networking, software, and analytics over the internet (“the cloud”). Instead of owning physical infrastructure, organizations rent resources on demand and pay only for what they use. Cloud computing is the backbone of modern IT, startups, enterprises, cybersecurity, and DevOps.

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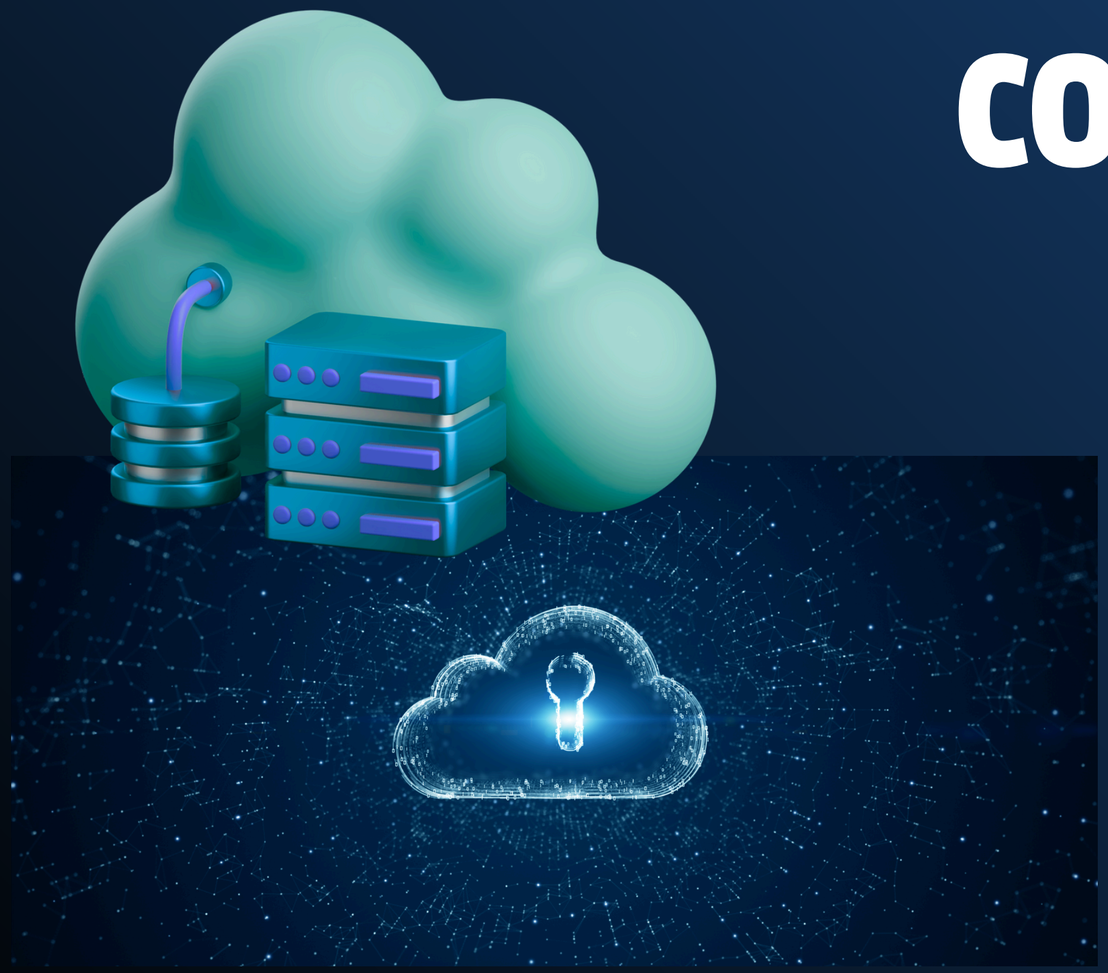

COURSE OBJECTIVES

After completing this course, learners will be able to:

- Understand cloud computing fundamentals
- Learn cloud service and deployment models
- Understand basic cloud architecture
- Learn cloud security basics
- Prepare for AWS, Azure, and other cloud certifications

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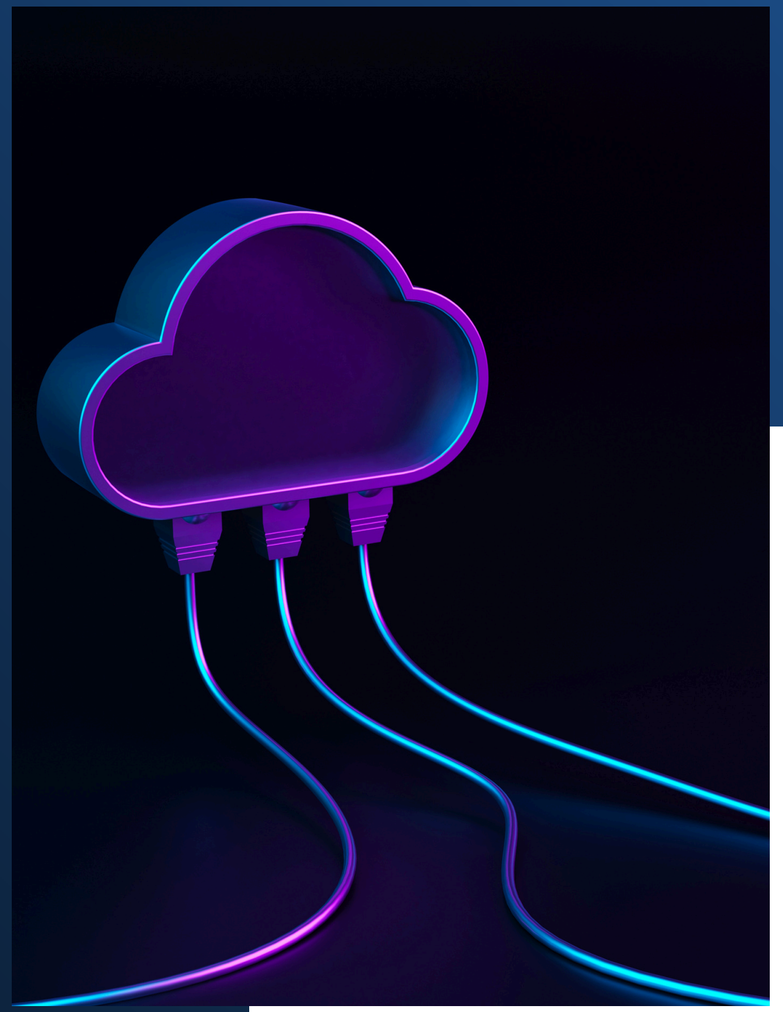
INTRODUCTION TO CLOUD COMPUTING

Cloud computing allows users to access computing resources over the internet instead of using local servers or personal computers. Examples of cloud usage:

- Google Drive
- Gmail Netflix
- Amazon Web Services
- Traditional IT vs Cloud Computing
- Traditional IT:
- Physical servers
- High upfront cost
- Manual maintenance
- Cloud Computing:
- Virtual resources
- Pay-as-you-go
- Automatic scalability



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BENEFITS OF CLOUD COMPUTING

- Cost efficiency
- Scalability and flexibility
- High availability
- Disaster recovery
- Global access

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CLOUD SERVICE MODELS

IaaS (Infrastructure as a Service)

- Virtual machines
- Storage Networking

Example: Virtual servers in the cloud

PaaS (Platform as a Service)

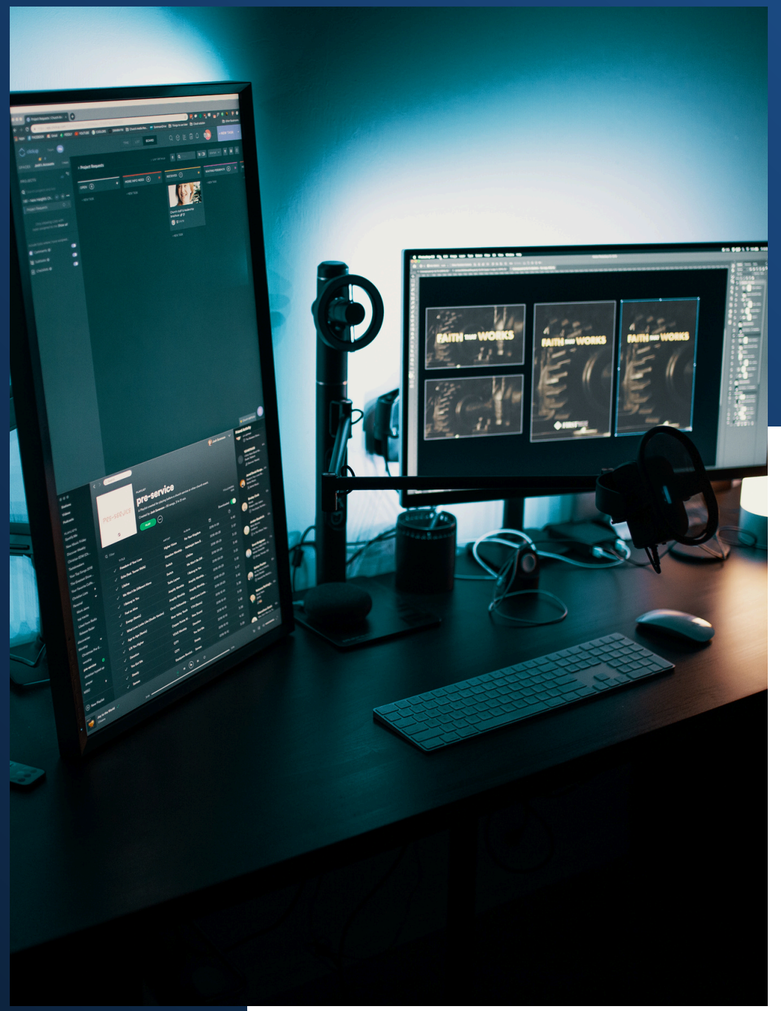
- Platform for developers
- No server management

Example: Application hosting platforms

SaaS (Software as a Service)

- Ready-to-use software
- Accessible via browser

Examples: Email services, Online office tools



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CLOUD DEPLOYMENT MODELS

Public Cloud

- Shared infrastructure
- Cost-effective
- Used by startups and enterprises

Private Cloud

- Dedicated infrastructure
- Higher security and control

Hybrid Cloud

- Combination of public and private cloud

Community Cloud

- Shared by organizations with common requirements

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CLOUD ARCHITECTURE BASICS

Key Components:

- Frontend (User Interface)
- Backend (Servers, Storage, Databases)
- Network
- Virtualization

Virtualization

Vishualization allows multiple virtual machines to run on a single physical server, improving resource utilization.

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CLOUD STORAGE

What is a Cloud Storage?

Cloud storage allows data to be stored and accessed remotely via the internet.

Types of Cloud Storage:

- Object Storage
- Block Storage
- File Storage

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CLOUD NETWORKING BASICS

Cloud Network includes:

- Virtual networks
- Subnets IP addressing
- Load balancers

What is a Cloud Storage?

A load balancer distributes traffic across multiple servers to improve performance and availability.

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CLOUD SECURITY BASICS

- Shared Responsibility Model
- Cloud provider secures infrastructure
- Customer secures data, access, and configurations
- Common Cloud Security Risks
- Misconfigured storage
- Weak access controls
- Data breaches
- Insecure APIs
- Basic Cloud Security Measures
- Identity and Access Management (IAM)
- Strong authentication
- Encryption
- Regular monitoring

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CLOUD COMPLIANCE AND GOVERNANCE

- Data privacy
- Regulatory compliance
- Logging and monitoring
- Backup and disaster recovery

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CLOUD USE CASES

- Website hosting
- Mobile applications
- Data backup
- Big data and analytics
- Cyber security monitoring

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CAREER IN CLOUD COMPUTING

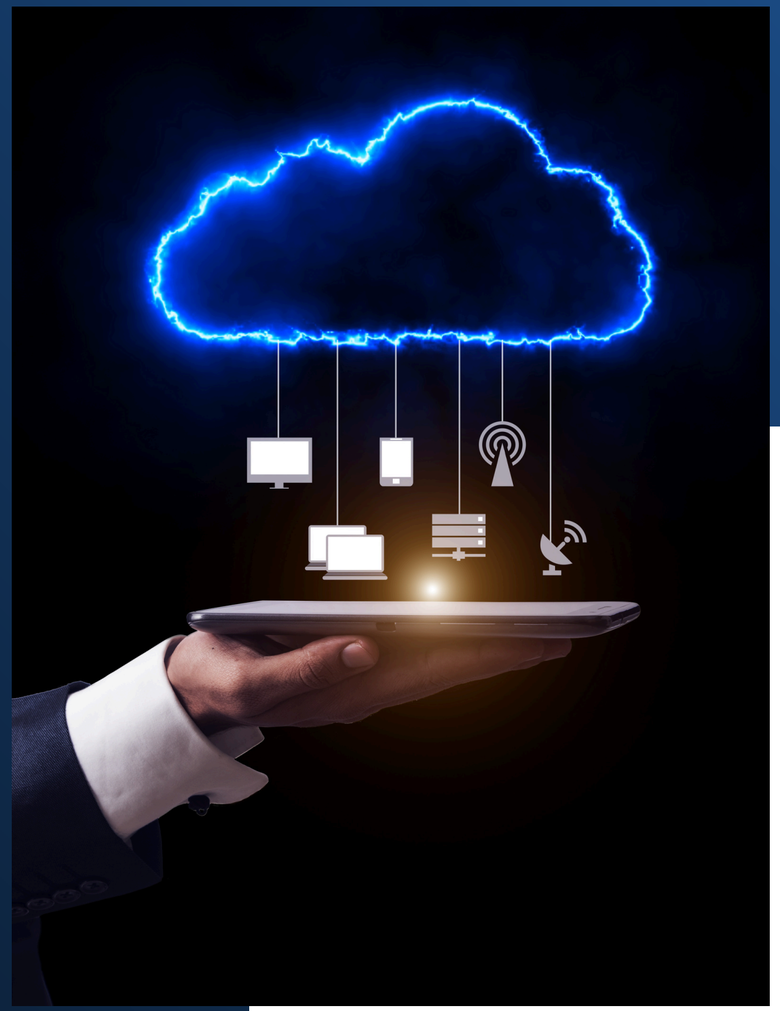
Cloud Job Roles

- Cloud Engineer
- Cloud Security Engineer
- DevOps Engineer
- Cloud Architect

Skills Required

- Networking fundamentals
- Linux basics
- Cloud platforms knowledge
- Security awareness

Cloud computing is not the future — it is the present. Understanding cloud fundamentals opens doors to high-demand, high-paying IT careers.



CLOUD COMPUTING QUIZ QUESTIONS (MCQS)

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Q1. What is cloud computing?

A. Storing data only on personal computers
B. Delivering computing services over the internet
C. Using physical servers at home
D. Offline data processing

Answer:B

Q2. Which is NOT a benefit of cloud computing?

A. Scalability
B. High upfront hardware cost
C. Cost efficiency
D. Global access

Answer:B

Q3. Which cloud service model provides virtual machines?

A. SaaS
B. PaaS
C. IaaS
D. DaaS

Answer:C

Q4. Software delivered via browser is called:

A. IaaS
B. PaaS
C. SaaS
D. NaaS

Answer:C

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Q5. Which deployment model combines public and private cloud?

A. Public cloud
B. Private cloud
C. Hybrid cloud
D. Community cloud

Answer:C

Q6. Virtualization allows:

A. One OS per server only
B. Multiple VMs on one physical server
C. No hardware usage
D. Only cloud storage

Answer:B

Q7. Which storage type is best for unstructured data?

A. Block storage
B. File storage
C. Object storage
D. Cache storage

Answer:C

Q8. Who is responsible for securing customer data in the cloud?

A. Cloud provider only
B. Customer only
C. Both provider and customer
D. Government

Answer:C

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Q9. Which is a common cloud security risk?

A. Manual scaling
B. Misconfigured storage
C. No internet
D. Hardware failure at home

Answer:B

Q10. Which role focuses on designing cloud solutions?

A. Cloud Architect
B. Data Entry Operator
C. Hardware Technician
D. Graphic Designer

Answer:A