

RLMCA 381

ASSIGNMENT I

Cloud Computing

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Introduction to Cloud Cognitive Class Certificate Course

The Cognitive Class course on Introduction to Cloud provides a comprehensive overview of cloud computing, including its core concepts, benefits, and use cases. The course also covers the different types of cloud services, deployment models, and components.

Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, intelligence, and more—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale

Topics covered:

Module 1 - Overview of Cloud Computing, section

- Module Introduction and Objectives,
- : Definition and Essential Characteristics of Cloud Computing
- : History and Evolution of Cloud Computing
- : Key Considerations for Cloud Computing
- : Key Cloud Service Providers and Their Services

Module 2 - Cloud Adoption and Emerging Technologies, section

- Introduction and Objectives,
- : Cloud Adoption - No Longer a Choice
- : Cloud Adoption - Some Case Studies
- : Internet of Things in the Cloud
- : Artificial Intelligence on the Cloud
- : Block chain and Analytics on the Cloud

Module 3 - Cloud Computing Service and Deployment Models, section

Module Introduction and Objectives,

: Overview of Service Models

: IaaS - Infrastructure as a Service

: PaaS - Platform as a Service

: SaaS - Software as a Service

: Public Cloud

: Private Cloud

: Hybrid Cloud

Module 4 - Components of Cloud Computing, section

Module Introduction and Objectives,

: Overview of Cloud Infrastructure

: Virtualization and Virtual Machines Explained

: Types of Virtual Machines

: Bare Metal Servers

: Secure Networking in Cloud

: Containers

Module 5 - Cloud Computing Storage and Content Delivery Networks, section

Module Introduction and Objectives,

- : Basics of Cloud Storage
- : File Storage
- : Block Storage
- : Object Storage Overview
- : Object Storage - Tiers and APIs
- : Content Delivery Networks

Module 6 - Emergent Trends, Cloud Native, DevOps and Application Modernization, section

Module Introduction and Objectives,

- : Hybrid Multicloud
- : Microservices
- : Serverless Computing
- : Cloud Native Applications
- : DevOps on the Cloud
- : Application Modernization

Key Cloud Service Providers

The major cloud service providers (CSPs) include:

- Amazon Web Services (AWS)
- Microsoft Azure
- Google Cloud Platform (GCP)

- IBM Cloud
- Alibaba Cloud

These CSPs offer a wide range of cloud services, including IaaS, PaaS, and SaaS.

IoT in Cloud

The Internet of Things (IoT) refers to the network of physical devices that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet.

Cloud computing plays a vital role in IoT by providing the infrastructure, storage, and processing power needed to manage and analyze the massive amounts of data generated by IoT devices.

AI in Cloud

Artificial intelligence (AI) is the ability of machines to perform tasks that typically require human intelligence, such as learning, reasoning, and problem-solving.

Cloud computing provides the infrastructure and resources needed to develop, deploy, and scale AI applications.

Block chain in Cloud

Block chain is a distributed ledger technology that allows for secure, transparent, and tamper-proof transactions.

Cloud computing can be used to deploy and manage blockchain networks, as well as to develop and deploy blockchain-based applications.

Cloud Services

Cloud services are classified into three main categories: IaaS, PaaS, and SaaS.

- Infrastructure as a Service (IaaS): IaaS provides the basic building blocks of cloud computing, such as servers, storage, networking, and operating systems.
- Platform as a Service (PaaS): PaaS provides a platform for developing, deploying, and managing software applications.

- Software as a Service (SaaS): SaaS provides software applications that are hosted and managed by the cloud provider.

Deployment Models

Cloud computing can be deployed in three models: public cloud, private cloud, and hybrid cloud.

- Public cloud: Public cloud services are available to the general public over the internet.
- Private cloud: Private cloud services are dedicated to a single organization and are typically deployed on-premises.
- Hybrid cloud: Hybrid cloud combines public and private cloud services to create a customized solution that meets the specific needs of an organization.

Components of Cloud

Cloud computing consists of the following components:

- Cloud infrastructure: Cloud infrastructure refers to the physical hardware and software that supports cloud services.
- Virtualization and virtual machines: Virtualization is a technology that allows multiple virtual machines to run on a single physical server.
- Bare metal servers: Bare metal servers are dedicated to a single tenant and are not virtualized.
- Content delivery network (CDN): A CDN is a network of servers that are distributed around the world to deliver content to users with high performance and availability.
- File storage: File storage is a cloud service that provides storage for unstructured data, such as documents, images, and s.
- Block storage: Block storage is a cloud service that provides storage for structured data, such as database files and operating system images.

Conclusion

Cloud computing is a powerful technology that can transform the way businesses operating. By providing on-demand access to computing resources, cloud computing can help businesses to reduce costs, improve agility, and scale their operations more easily.

Additional Benefits of Cloud Computing

- Scalability and elasticity: Cloud computing can scale up or down on demand to meet the changing needs of your business.
- Reliability: Cloud providers offer high levels of reliability and uptime.
- Security: Cloud providers offer a wide range of security features to protect your data.
- Global reach: Cloud services are available from anywhere in the world with an internet connection.
- Cost savings: Cloud computing can help businesses to save money on IT