Faysal Aziz

Fundamentals and implementation of Cloud Computing

FA-0220

DevOps, Cloud & Infrastructure

Introduction

Discover the world of cloud computing with our comprehensive and hands-on course, designed to empower you with the knowledge and skills needed to confidently navigate any cloud service provider. Our unique, non-vendor specific approach ensures that you gain a solid understanding of cloud computing fundamentals, enabling you to make informed decisions about which cloud services and platforms best suit your needs. By the end of the course, you'll be equipped with the tools and expertise required to efficiently manage and optimize cloud resources, regardless of the provider you choose.

To ensure a well-rounded and practical learning experience, our course integrates real-world lab exercises using leading cloud service providers, including AWS, Azure, and DigitalOcean. By working with these platforms, you'll not only gain hands-on experience with a diverse range of cloud services, but also develop the ability to seamlessly adapt to new and emerging cloud technologies. Don't limit your potential to a single cloud provider – join our course today and unlock the power of multi-cloud mastery.

Learning Outcome

Upon completion of this cloud computing course, participants can expect to achieve the following learning outcomes:

- Understand the fundamentals of cloud computing, including its benefits, challenges, deployment models, and service models.
- Gain a broad understanding of the leading cloud service providers and be able to compare their offerings based on compute, storage, and networking services.
- Develop proficiency in managing virtual machines, storage, and networking in a cloud environment.
- Master the concepts of SSH, Terminal, and remote access to cloud resources.
- Implement identity and access management best practices to secure cloud resources.

- Deploy, manage, and optimize databases and storage solutions in the cloud.
- Configure and manage networking services, including DNS, CDN, and API gateways.
- Develop skills in containerization and orchestration using Docker and Kubernetes.
- Understand the principles of serverless computing and gain experience implementing serverless functions.
- Set up monitoring and logging for cloud resources to ensure optimal performance and security.
- Implement security and compliance best practices, including encryption, key management, and DDoS protection.
- Gain insight into multi-cloud management strategies and tools, such as Terraform and Ansible.
- Acquire the ability to adapt and work with multiple cloud service providers, enhancing flexibility and employability in the cloud computing industry.
- Apply the acquired knowledge and skills to real-world cloud computing scenarios, making informed decisions about the best cloud services and providers for specific use cases.

Metrics

- Duration: 3 days
- Class length: 9am to 5pm
- Lunch break: 1 hour
- Assessment: Hands-on and in-class
- Language of delivery: English

Laboratory

Our cloud computing course emphasizes hands-on learning, with laboratory sessions designed to provide practical experience working with multiple cloud service providers. To fully benefit from these labs, participants should have access to a computer with a stable internet connection and a modern web browser. For online training sessions, we will be using Zoom as our primary platform for video conferencing and screen sharing. To ensure a smooth and interactive learning experience, we require all trainees to keep their cameras on at all times during the training. This not only fosters a sense of engagement and collaboration but also enables our trainers to provide real-time feedback and assistance as participants work through the lab exercises. By combining theoretical knowledge with hands-on practice, our course equips trainees with the skills and confidence needed to excel in the rapidly evolving field of cloud computing.

Remote cloud lab access shall be provided in:

- AWS
- Azure
- DigitalOcean

Trainees must be equipped with:

- Terminal / PowerShell or similar console apps
- RDS
- Unrestricted internet connection
- Webcam and Mic (for OLL)

Prerequisites

Before attending this cloud computing course, participants should have a basic understanding of the following prerequisites:

- General IT knowledge: Familiarity with IT concepts, such as computer systems, networking, and software applications.
- Operating systems: A basic understanding of Windows, Linux, or macOS, including file systems, user management, and system configurations.
- Networking fundamentals: Knowledge of IP addresses, DNS, and basic networking concepts.
- Basic programming or scripting knowledge: Familiarity with at least one programming or scripting language (e.g., Python, JavaScript, or Bash) to understand and work with cloud SDKs and APIs.
- Web technologies: A basic understanding of web technologies, such as HTTP, RESTful APIs, and web servers.
- Command-line interface (CLI) experience: Familiarity with using a terminal or command prompt to execute commands on a local machine or remote server.

While not mandatory, the following skills and knowledge would be beneficial for participants:

- Virtualization: A basic understanding of virtualization technologies and hypervisors, such as VMware, Hyper-V, or VirtualBox.
- System administration: Experience with system administration tasks, such as user management, software installation, and system monitoring.
- Database management: Familiarity with relational (e.g., MySQL, PostgreSQL) and/or NoSQL (e.g., MongoDB, Cassandra) databases.

Please note that this course is designed to accommodate participants with varying levels of experience. It covers the fundamentals of cloud computing and progresses to more advanced topics, allowing participants to develop their skills and understanding throughout the course.

Training outline

1. Day 1: Introduction to Cloud Computing and Cloud Service Fundamentals

Morning Session:

Introduction to Cloud Computing

- Definition and evolution of cloud computing
- Benefits and challenges of cloud computing
- Cloud deployment models: Public, Private, and Hybrid clouds
- Cloud service models: IaaS, PaaS, and SaaS

Overview of Major Cloud Service Providers

- Brief introduction to leading cloud providers
- Comparison of cloud providers based on compute, storage, and networking services

Cloud Computing Fundamentals

- Virtual Machines
- Object and Block Storage
- Networking and Virtual Private Cloud (VPC)
- Identity and Access Management

Afternoon Session:

4. Hands-on: Basic Cloud Services

- Setting up accounts and exploring management consoles
- Creating and managing virtual machines, storage, and VPCs

  Working with SSH, Terminal, and Remoting

  - SSH and SSH Keys: Concepts, generation, and usage
  - Terminal usage and basic commands
  - Remote access to cloud resources
- Wrap-up and Q&A

2. Day 2: Intermediate Cloud Concepts and Services

Morning Session:

Databases and Storage Solutions

- Relational Databases
- NoSQL Databases
- File Storage

Networking Services

- Domain Name System (DNS)
- Content Delivery Networks (CDN)
- API Gateway

Containers and Orchestration

- Docker basics
- Kubernetes basics

Afternoon Session:

4. Hands-on: Identity and Access Management

- Create and manage users, groups, and permissions

  Hands-on: Deploying Databases and Storage Solutions

  - Set up and configure databases and storage services

  Hands-on: Networking Services

  - Implement domain management, content delivery, and API gateway services

  Hands-on: Containers and Orchestration

  - Deploy containerized applications using Kubernetes
- Wrap-up and Q&A

3. Day 3: Advanced Cloud Concepts and Multi-Cloud Management

Morning Session:

Serverless Computing

- Introduction to serverless computing
- Examples of serverless computing platforms

Monitoring and Logging

- Monitoring cloud resources
- Logging and auditing

Security and Compliance

- Encryption and key management
- DDoS protection and security best practices

Afternoon Session:

4. Hands-on: Serverless Computing

- Implement serverless functions on a selected platform

  Hands-on: Monitoring and Logging

  - Set up monitoring and logging for cloud resources

  Hands-on: Security and Compliance

  - Implement encryption, key management, and DDoS protection

  Multi-Cloud Management

- Strategies for managing multi-cloud environments
- Tools for multi-cloud management: Terraform, Ansible, etc.

Wrap-up, Q&A, and Next Steps

- Review key takeaways
- Discuss resources for further learning
- Explore certifications and career opportunities in cloud computing

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