CELEBRATING 14 YEARS

QualityThought®

Transforming Dreams! Redefining Future!

Khaja Ibrahim
Sr. Cloud Architect
Trained 10,000+ Students & Professionals

MULTI CLOUD Engineer

Azure

aws

A gateway to your Bright Future in the IT Industry

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our STORY BEGINS here

Lets Start Here

Hello there! It's a pleasure to connect with you all, my future Azure engineers. I'm Khaja, and I'm absolutely thrilled to have the opportunity to guide you on this exciting journey into the world of Cloud. Over the years, I've had the privilege of teaching thousands of students, and I must say, watching them embark on their Cloud adventure has been nothing short of amazing.

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Our journey together will be full of hands-on experiences, practical exercises, and real-world projects that will not only build your technical skills but also prepare you to excel in the fast-paced, ever evolving world of Cloud And I wanted to make it more individual for you based on your background from which you are

Transition into Cloud

- zero knowledge or very little IT knowledge
- system administrator
- software developer
- test engineer
- network engineer
- database administrators
- middle ware administrators

Azure isn't merely a cloud service; it's a comprehensive ecosystem that empowers businesses to build, deploy, and manage applications with unparalleled flexibility and efficiency. Whether you're a seasoned IT professional or someone taking their first steps in the tech world, Azure offers a diverse array of services that cater to every conceivable need.
Throughout this course, we will embark on a journey through the Azure landscape, exploring fundamental concepts and delving into advanced capabilities. We'll unravel the mysteries of services like Virtual Machines, Azure Functions, Azure DevOps, and more. But beyond theory, we'll engage in hands-on activities, ensuring that you not only understand the concepts but can apply them in real-world scenarios.

Our goal is not just to prepare you for Azure certifications (although we will certainly do that!), but to empower you with the skills and knowledge needed to architect robust, scalable, and secure solutions. Azure is not just a platform; it's a mindset. It's about embracing innovation, optimizing performance, and ensuring the highest standards of security.
Your success is not a mere metric of this course; it is its very essence. As you progress through the modules, you'll find that Azure is not just about technology; it's about transformation. It's about empowering you to navigate the complexities of the cloud confidently, making you not just a user of Azure but a masterful architect of solutions.

So, get ready. This isn't just a course; it's a ticket to a realm where possibilities are limitless, and the future is shaped by those who dare to explore it. Whether you're looking to advance your career, transition to a new role, or simply stay ahead of the technological curve, Azure is your gateway to success.

Let's embark on this Azure adventure together. Welcome to a world of endless possibilities!

Linux For the Job

Linux is the foundation of most server environments, and DevOps and cloud engineers need to be proficient in Linux to manage and automate server configurations.

Basic Concepts

- Shell Commands
- File System & Permissions
- User Management
- SSH Key Management
- Package Management
- Process Management
- Disk Management
- Networking
- Shell Scripting and Automation
- Network Configurations
- DNS, Load Balancers and Proxies

Introduction to Cloud Computing Basics

Why Elastic Stack ?

Imagine you're building a massive, intricate puzzle (your software system). Instead of keeping all the pieces and tools in your own workshop (on your computer or servers), you can use a magical workshop in the sky (the cloud).

Here's why Cloud DevOps Engineers need to understand cloud computing basics

Infinite Tools: In the cloud, you have access to an infinite number of tools and resources. It's like having an endless supply of puzzle pieces and unique tools that you can use to build your puzzle faster and better.

Flexibility: Cloud computing allows you to resize your workshop whenever you need. Need more space (resources) for a big project? You can instantly expand your workshop. When the project is done, you can shrink it back down.

Cost-Efficiency:
You only pay for what you use. It's like renting tools and space for your puzzle project. No need to buy and maintain everything yourself, which can be expensive.

Accessibility:
You can access your workshop and tools from anywhere with an internet connection. This means you can work on your puzzle from home, the office, or even while sipping coffee at your favorite café.

Collaboration:
Cloud computing allows multiple people to work on the same puzzle (or software project) simultaneously. It's like having a team of puzzle enthusiasts working together without being in the same physical location.

Safety and Backup:
Your puzzle pieces and tools are stored safely in the cloud. Even if your computer (workshop) crashes, you won't lose your progress because everything is securely stored in the sky

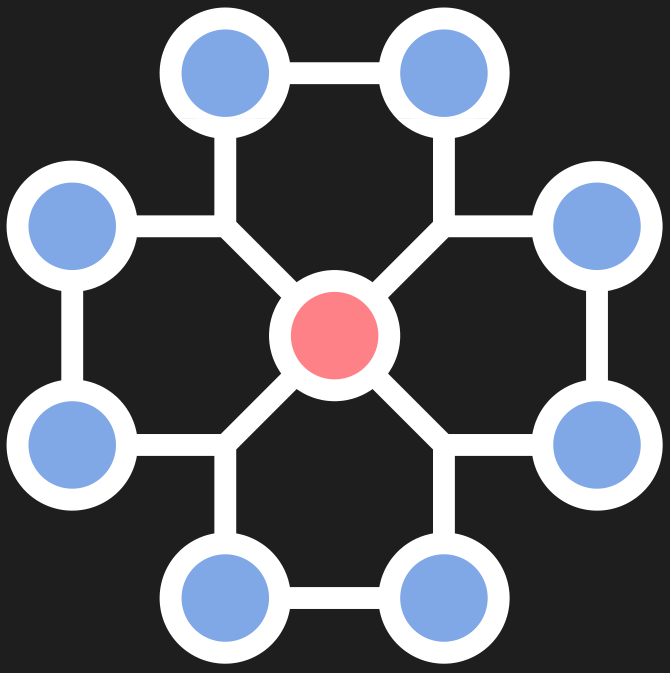
So, understanding cloud computing basics is like knowing how to use this incredible cloud-based workshop effectively. It helps Cloud DevOps Engineers build software systems faster, cheaper, and with the flexibility and collaboration options they need. It's like having a set of superpowers for software development!

What you would be learning?

- What is Cloud Computing
- Cloud Service Models
- Deployment Models
- Major Cloud Providers
- Setting Up Cloud Accounts
- Virtualization
- Cloud Computing Architecture
- Cloud Security

Networking in Azure

Why Networking ?



Imagine you're building a complex and interconnected city of digital services and applications in the cloud. Azure Networking is like the system of roads, bridges, and tunnels that make sure everything in your digital city can communicate and function smoothly.

Here's why Cloud DevOps Engineers need Azure Networking in simple terms:

Connecting Services:
Just like roads connect different parts of a city, Azure Networking connects all the different services and resources in your cloud environment. It ensures they can talk to each other.

Security:
Azure Networking also acts like security checkpoints on those roads. It controls who gets to access which parts of your digital city and keeps the bad "traffic" out.

Reliability:
Think of Azure Networking as traffic lights that manage the flow of data. It ensures that data flows without collisions, making your digital city (your applications) more reliable and less prone to crashes.

Scaling Up:
When your digital city grows, Azure Networking helps you build new roads and bridges (network configurations) quickly to handle the increased traffic (data) as your applications expand.

Monitoring:
Just as you might have cameras and sensors on city streets, Azure Networking provides tools to monitor the health and performance of your digital city, helping you detect and fix issues faster.

In a nutshell, Azure Networking is like the infrastructure that keeps your digital city (cloud applications) running smoothly, securely, and efficiently, allowing Cloud DevOps Engineers to ensure that all the digital parts of your city can communicate and work together seamlessly

What you would be learning?

- Overview of Azure Networking
- Azure Network Components such as Virtual Networks (Vnets), Subnets, and Network Security Groups (NSGs)
- Azure Virtual Network Peering
- Azure Load Balancers
- Azure Application Gateway
- Azure VPN Gateway
- Network Security Groups
- Azure Firewall
- DDoS Protection
- Route Tables
- ExpressRoute
- Azure DNS
- Network Watcher
- Azure Site-to-Site VPN
- Azure Bastion

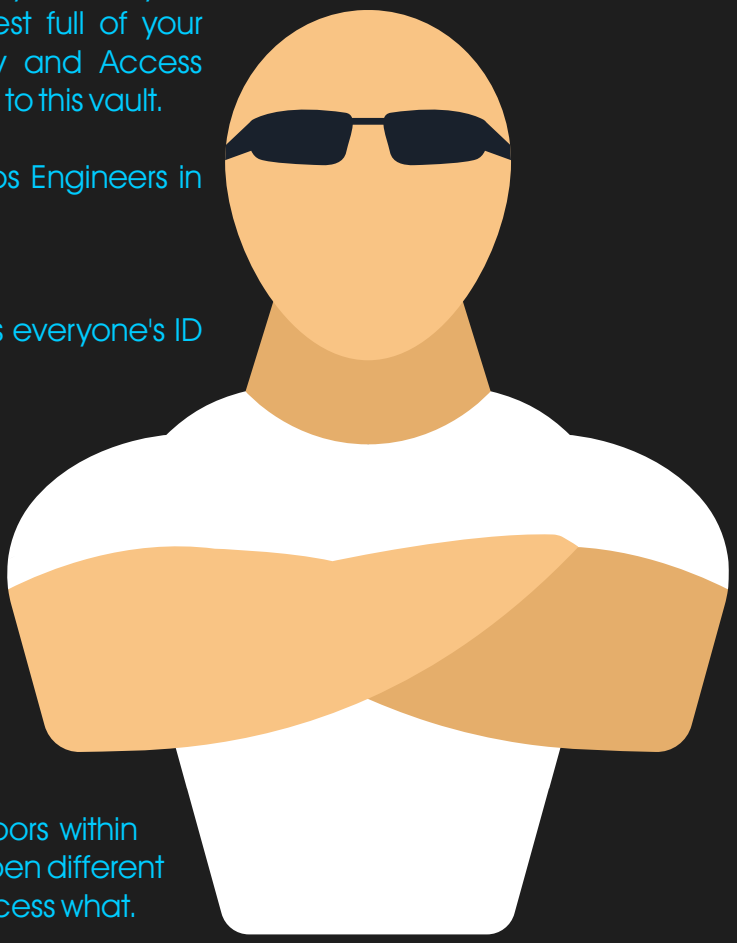
Additional Tasks

- VNet Design and Peering
- High Availability Load Balancers
- Hybrid Network Connection
- Azure Firewall Deployment
- DDoS Protection Implementation
- Traffic Analytics and Monitoring
- Azure DNS Management
- Application Gateway with Web Application Firewall (WAF)
- Network Automation with Azure Functions
- Azure Bastion Implementation
- Network Traffic Capture and Analysis
- Advanced Network Monitoring with Azure Monitor and Log Analytics

Identity And Access Management

Why Identity and Access Management in Azure ?

Imagine you have a secure vault in the cloud where you store your most valuable digital assets—like a treasure chest full of your important data and applications. Azure Identity and Access Management (IAM) is like the guard at the entrance to this vault.



Here's why Azure IAM is essential for Cloud DevOps Engineers in simple terms

The Gatekeeper:
Think of Azure IAM as the gatekeeper who checks everyone's ID before they can enter the vault. It ensures that only the right people (or in this case, the right services and users) have permission to access your precious digital assets.

Security: Just like you wouldn't want someone to stroll into your treasure vault without permission, Azure IAM helps keep your digital assets safe. It controls who can open the vault door and what they can do inside.

Organized Access: Azure IAM organizes access neatly. It's like having different keys for different doors within the vault. Some keys open one door, while others open different ones, so you have precise control over who can access what.

Records and Audits: It keeps a log of who enters the vault and what they do inside. This is important for security and for tracking any unusual or suspicious activity.

Revoking Access:
Just as you can change locks if you lose a physical key, Azure IAM allows you to easily revoke access permissions if someone leaves your team or if there's a security concern.

In a nutshell, Azure IAM is like the digital bouncer and key manager for your cloud vault. It ensures that only the right people and services get access, keeps everything secure, organized, and tracked, and makes it easy to manage access as your digital assets grow and change.

What you would learn ?

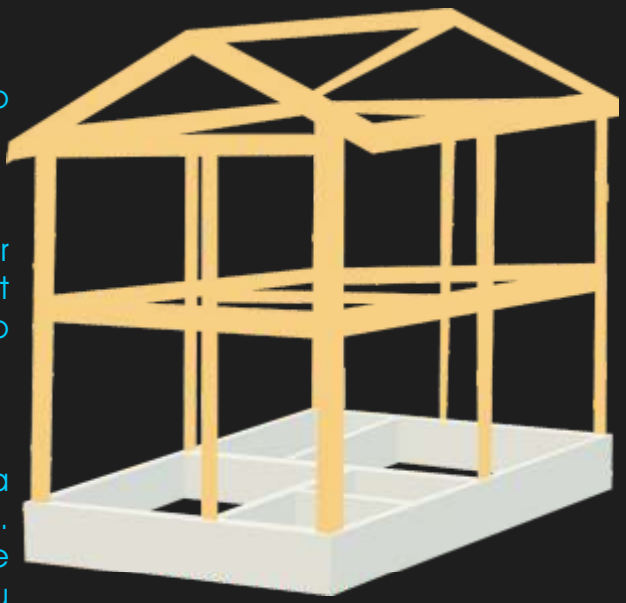
- Introduction to Identity and Access Management (IAM)
- Azure IAM Overview
- Azure AD Tenant
- Azure AD Basics
- Azure AD Authentication
- Azure AD Authorization
- Azure AD with Azure Resources
- Azure AD Application Integration
- Azure AD B2B and B2C
- Azure AD Privileged Identity Management (PIM)
- Role-Based Access Control (RBAC)
- Azure Key Vault
- Azure Managed Identities
- Azure AD Domain Services

Additional Tasks

- Azure AD User Management Dashboard
- Multi-Factor Authentication (MFA) Implementation
- Role-Based Access Control (RBAC) Automation
- Azure AD B2C Integration
- Identity Governance Solution
- Azure AD Security Alerts
- Azure Key Vault Access Control
- Azure AD Conditional Access Policies
- Integration with On-Premises Active Directory
- Azure AD Identity Protection
- Real-time Monitoring and Alerting

Compute with Virtual Machines

Why



Imagine you're building a house, and you have two options for your foundation

Traditional Way:
You could dig a big hole in your backyard, pour concrete, and build your foundation from scratch. It would take a lot of time and effort, and if you want to change something later, it's a big hassle.

Azure IaaS Way:
Alternatively, you could use Azure Infrastructure as a Service (IaaS). It's like renting a ready-made foundation. You get a solid base to build your house on without the hard work of digging and pouring concrete. Plus, if you want to make changes, it's as simple as rearranging some pre-made blocks.

In simple terms, Azure IaaS is like having a pre-prepared, customizable foundation for your digital projects. It saves you time, effort, and headaches, allowing Cloud DevOps Engineers to focus on building and managing their applications instead of dealing with the nitty-gritty infrastructure details

What you would learn ?

- Azure Resource Hierarchy
- Azure IaaS Overview
- Azure VM Basics
- VM Deployment
- VM Management and Monitoring
- VM High Availability using Availability Sets and Virtual Machine Scalesets
- Using Load Balancers and Application Gateways
- VM Disaster Recovery
- Custom VM Images
- Hybrid Clouds

Additional Tasks

- High Availability Web Application
- Disaster Recovery Solution
- Custom VM Image Library
- Custom Script Extensions
- Cost Optimization Assessment

Compute with PaaS

Why

Imagine you're running a restaurant, and you have two options for making your famous dishes

Cook Everything from Scratch:
You could start from scratch every time you need to make a dish. That means planting and harvesting your own ingredients, making your own utensils, and constructing your own kitchen. It's a lot of work, takes a long time, and can be expensive.

Use a Modern Kitchen:
Alternatively, you could use a fully equipped, modern kitchen. It's like having a kitchen with all the tools, ingredients, and appliances you need ready to go. You can focus on creating delicious dishes without worrying about building the kitchen first.

In simple terms, Azure Platform as a Service (PaaS) is like that modern kitchen. It provides Cloud DevOps Engineers with a ready-made platform and tools to build and run applications without needing to worry about managing the underlying infrastructure. It's efficient, saves time, and allows engineers to focus on creating and improving their applications.

What you would learn ?

- Introduction to Azure PaaS
- Azure Web Apps Basics
- Creating and Deploying Web Apps
- Web App Scaling and Monitoring
- Continuous Integration and Deployment (CI/CD) for Web Apps
- Azure App Service Environment Overview
- Setting Up an ASE
- Deploying Apps to ASE
- ASE Security and Networking

Compute with Serverless

Why

Imagine you're hosting a big party, and you want to serve snacks to your guests. You have two options.

Traditional Cooking:
You could spend hours in the kitchen, preparing snacks, cooking, and serving them one by one. It's time-consuming, and you have to be in the kitchen the whole time.

Catering Service:
Alternatively, you could hire a catering service. They'll bring all the snacks, set up the serving area, and take care of everything. You can enjoy the party without worrying about the snacks.

Azure Serverless is like the catering service for Cloud DevOps Engineers. It allows them to build and run applications without worrying about managing servers or infrastructure. They can focus on writing code and developing applications, while Azure Serverless takes care of the underlying technical details. It's efficient, cost-effective, and frees up time for engineers to work on what matters most - creating great software.

What you would learn ?

- Introduction to Serverless
- Azure Functions Basics
- Creating and Deploying Functions
- Event-Driven Development
- Integrating Functions with Other Azure Services
- Introduction to Azure Logic Apps
- Creating Logic Apps
- Logic App Connectors
- Introduction to Azure Event Grid
- Event Grid Topics and Subscriptions
- Event Grid Routing and Filtering
- Implementing Event-Driven Solutions

Additional Tasks

- Serverless Web Application
- Continuous Integration and Deployment (CI/CD) Pipeline
- Serverless RESTful API
- Azure Functions for Event-Driven Automation
- Custom API Gateway

Storage

Why

Keep Everything at Home:
You could try to keep everything in your new house, but it might get cluttered and hard to manage. Plus, it could slow down your daily activities.

Rent a Storage Unit:
Alternatively, you could rent a storage unit nearby. It's like having extra space to store your belongings safely and neatly, without cluttering your new home.

Azure Storage is like that storage unit for Cloud DevOps Engineers. It provides a safe and efficient way to store and manage data, files, and other resources without overloading the servers and applications they're working on. It helps keep things organized and accessible, allowing engineers to focus on their tasks without worrying about running out of space or causing slowdowns.

What you would learn ?

- Azure Storage Overview
- Azure Managed Disk Storage Introduction
- Azure Storage Accounts
- Azure Blob Storage
- Azure Table Storage
- Azure Queue Storage
- Azure Files
- Managed Disks
- Azure Data Lake Storage

Additional Tasks

- Backup and Restore Automation
- Multi-region Data Replication
- Serverless File Upload Service
- Data Archiving and Retention
- Media Streaming Service
- Content Delivery Network (CDN) Integration
- Secure File Sharing and Collaboration

Databases

Why

Imagine you're running a library, and you need a way to organize and manage all the books and information about them. You have two options:

Manual Record-keeping:
You could try to keep track of all the books and their details on paper or in spreadsheets. It's time-consuming, prone to errors, and gets increasingly difficult as the library grows.

Library Database:
Alternatively, you could use a special database system designed for libraries. It's like having a magical librarian who keeps track of all the books, borrowers, due dates, and even suggests new books to readers. It's efficient, accurate, and makes running the library much easier.

Azure Databases are like that magical librarian for Cloud DevOps Engineers. They provide organized and efficient storage for data, making it easier to manage, retrieve, and analyze information. It ensures data is stored securely and can be accessed quickly, helping engineers build and run applications smoothly without the hassle of manual record-keeping.

What you would learn ?

- Azure SQL Database
- Creating and Managing Databases
- Data Security and Encryption
- Querying and Optimization
- Azure Cosmos DB
- Creating and Managing Collections
- Global Distribution and Scaling
- Developing with Azure Cosmos DB
- Azure Database for PostgreSQL
- Creating and Managing PostgreSQL Databases
- Azure Database for MySQL
- Creating and Managing MySQL Databases
- NoSQL Databases in Azure
- Data Backup and Disaster Recovery
- Monitoring and Performance Optimization
- Cost Optimization

Additional Tasks

- E-commerce Database Scaling
- Healthcare Data Security
- Multi-region Data Replication
- Data Catalog and Search Engine

Integration and Messaging Services

Why

Imagine you're the conductor of a large orchestra, and each musician represents a different part of a complex musical composition. To create beautiful music, you need everyone to play their notes at the right time and in harmony.

Azure Integration and Messaging Services are like the conductor for cloud applications and systems. They ensure that all the different parts of your application, such as databases, web services, and mobile apps, can communicate and work together seamlessly. Just as a conductor coordinates the musicians, these services coordinate the different components of your software, making sure data and messages flow smoothly between them.

Azure Databases are like that magical librarian for Cloud DevOps Engineers. They provide organized and efficient storage for data, making it easier to manage, retrieve, and analyze information. It ensures data is stored securely and can be accessed quickly, helping engineers build and run applications smoothly without the hassle of manual record-keeping.

Without these services, your cloud applications might become chaotic, like a disorganized orchestra. But with Azure Integration and Messaging Services, your applications can play together in harmony, creating a smooth and efficient experience for users. They help Cloud DevOps Engineers ensure that all the moving parts of a complex system work together seamlessly and efficiently, just like a well-conducted orchestra produces beautiful music.

What you would learn ?

- Azure Service Bus
- Creating and Managing Queues and Topics
- Building Complex Workflows
- Introduction to Azure API Management
- Creating and Publishing APIs
- Introduction to Azure Event Grid
- Event Grid Topics and Subscriptions
- Implementing API Management and Event-Driven Solutions

Additional Tasks

- API Gateway and Management Platform
- Serverless Workflow Automation
- Microservices Communication Hub
- Cross-Platform Messaging Solution

Management and Governance

Why

Imagine you're the captain of a large ship sailing on the open sea. Your ship is like a complex cloud system with many parts and crew members. To make sure everything runs smoothly and safely, you need rules, navigation charts, and a clear chain of command.

Azure Management and Governance are like the tools and processes that help you run your cloud ship effectively. They provide you with the ability to set rules and guidelines for how things should work, keep an eye on the ship's performance, and ensure that everyone follows the right procedures.

Without Azure Management and Governance, your cloud system might become chaotic, like a ship without navigation or discipline. But with these tools, Cloud DevOps Engineers can steer the ship of their cloud systems with precision, ensuring that everything is organized, efficient, and sails smoothly toward their destination. In essence, it helps them maintain control, security, and compliance in the vast sea of cloud resources.

What you would learn ?

- Overview of Azure Management and Governance
- Understanding ARM Templates and Azure Bicep
- Resource Groups and Organization
- Deploying and Managing Resources
- Introduction to Azure Policy
- Creating and Managing Policies
- Azure Blueprints
- Creating Governance Blueprints
- Introduction to Cost Management
- Managing Costs
- Billing and Pricing Models
- Cost Optimization
- Introduction to Azure Monitor
- Monitoring Resources
- Implementing Monitoring and Security
- Compliance Frameworks
- Compliance Assessment

Migration

Why

Imagine you're moving to a new house. You have a lot of furniture and belongings in your old house, and you want to take everything with you to the new place. However, the new house is different in some ways - the layout might be different, and some things need to be set up differently.

Azure Migrations, in a way, are like moving your digital "stuff" (applications, data, and systems) from your old "house" (your on-premises data center or another cloud provider) to your new "house" in Azure, which is Microsoft's cloud platform. Here's why we need Azure Migrations:

Cost Efficiency:
Azure often offers cost savings compared to maintaining your own data center. Migrating to Azure can reduce hardware and maintenance costs.

Scalability:
Azure provides the ability to scale up or down based on your needs. If your applications suddenly become more popular, Azure can handle the increased traffic.

Security and Compliance:
Azure has robust security measures and compliance certifications. Migrating to Azure can help ensure your data and applications meet security and compliance requirements.

Flexibility:
Azure supports a wide range of technologies and services. Migrating allows you to take advantage of new technologies and services that can benefit your business.

Disaster Recovery:
Azure provides built-in disaster recovery options. Migrating to Azure can improve your ability to recover from unexpected events.

Global Reach:
Azure has data centers in many regions worldwide. Migrating to Azure can help you reach a global audience more effectively.

In simple terms, Azure Migrations help businesses move their digital "stuff" to a new, more cost-effective, and flexible "house" in the cloud, where they can better manage their applications and data while taking advantage of the latest technology and security features.

What you would learn ?

- Landing Zones
- Virtual machine Migration P2V (Physical to Virtual Migration)
- Virtual machine Migration V2V (Virtual to Virtual Migration)
- Database Migration
- Storage Migration

Reference Architectures

What you would learn ?

- Introduction to Cloud Reference Architectures
- Cloud Design Principles and Patterns
- Azure Well-Architected Framework
- Azure Reference Architectures
- Hybrid and Multi-Cloud Architectures
- Serverless and Event-Driven Architectures

Real time Projects

- Real-time Monitoring and Alerting Dashboard
- Continuous Integration/Continuous Deployment (CI/CD) Pipeline
- Serverless Web Applications
- Event-Driven Microservices
- Azure Functions Orchestration
- Hybrid Cloud Integration

Transition into Cloud

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AWS is not just a cloud platform; it's a catalyst for innovation, a cornerstone of digital transformation, and a game-changer for individuals seeking to elevate their careers in the ever-evolving landscape of technology. This course is designed to be your gateway to the vast and powerful realm of AWS, providing you with the knowledge, skills, and confidence needed to navigate its intricate services and solutions.
In this course, we will embark on a comprehensive exploration of AWS, covering everything from the foundational principles to advanced concepts. We'll dive into key services like EC2, S3, Lambda, and RDS, demystifying the complexities and equipping you with the skills to architect scalable and resilient solutions.

But this course is more than just theoretical knowledge. It's a hands-on experience. We'll delve into practical, real-world scenarios, providing you with the opportunity to apply what you've learned in a simulated AWS environment. You'll gain the confidence to navigate the AWS Management Console, create secure and robust architectures, and optimize performance for a variety of use cases.

Your success is not just a goal; it's the heartbeat of this course. As you progress, you'll find that AWS is not just a set of services; it's a mindset. It's about thinking innovatively, optimizing relentlessly, and ensuring security at every step. These principles will not only prepare you for AWS certifications but will also become the cornerstone of your approach to solving real-world challenges.

So, buckle up, for the journey ahead promises not just technical mastery but a transformation in the way you perceive and architect solutions in the cloud. Whether you're seeking to advance in your current role, switch careers, or simply stay ahead in the ever-evolving tech landscape, AWS is your ticket to new horizons.

Let's embark on this adventure together. Welcome to the AWS revolution!

Linux For the Job

Linux is the foundation of most server environments, and DevOps and cloud engineers need to be proficient in Linux to manage and automate server configurations.

Basic Concepts

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- File System & Permissions
- User Management
- SSH Key Management
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- Network Configurations
- DNS, Load Balancers and Proxies

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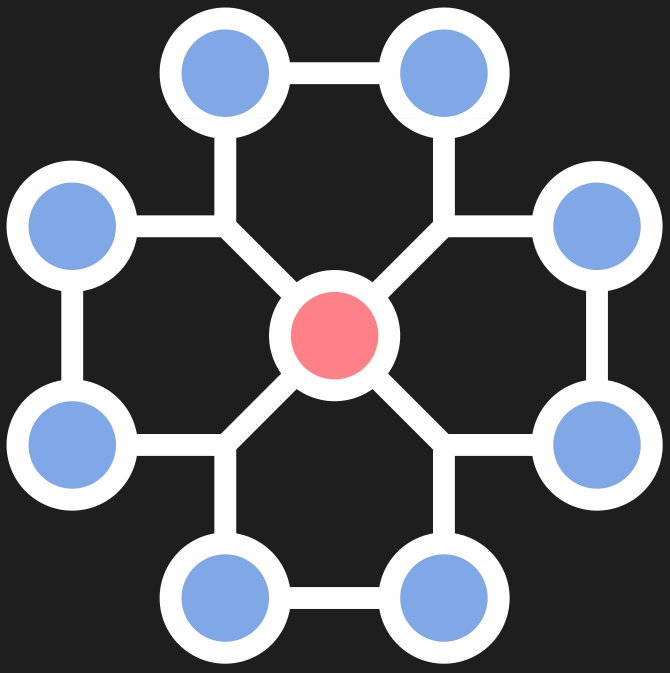
- Virtualization
- Cloud Computing Architecture
- Cloud Security

Networking in AWS

Why Networking ?



Imagine you're the manager of a large office building with many rooms and employees. Your employees need to communicate with each other, share information, and access resources, such as printers and the internet. To make all this happen smoothly, you need a well-organized network of cables, switches, and routers.

AWS Networking is like the digital version of setting up this office network but in the cloud. It provides the infrastructure and tools to connect different parts of your cloud-based applications and services, just like how you connect rooms and resources in your office building. Here's why we need AWS Networking:

Connectivity:
AWS Networking allows different parts of your applications and services to talk to each other, just like employees in different rooms need to communicate.

Security:
It helps you set up secure boundaries and controls to ensure only authorized users (orapplications) can access specific resources, just like locking certain rooms in your office.

Performance:
AWS Networking ensures that data can flow quickly and efficiently between different parts of your cloud setup, similar to having fast and reliable internet connections in your office.

Scalability:
As your business grows, you can easily expand and adjust your AWS Networking setup to accommodate new users and services, like adding more rooms to your office building. Availability: AWS Networking includes redundancy and failover options to ensure that your services remain accessible even if there are issues, similar to having backup power sources in your office.

In simple terms, AWS Networking helps Cloud DevOps Engineers set up the digital "cables and connections" in the cloud to ensure that all the parts of their applications and services can communicate securely, perform well, and scale as needed, just like a well-organized office network helps employees work efficiently in an office building

What you would be learning?

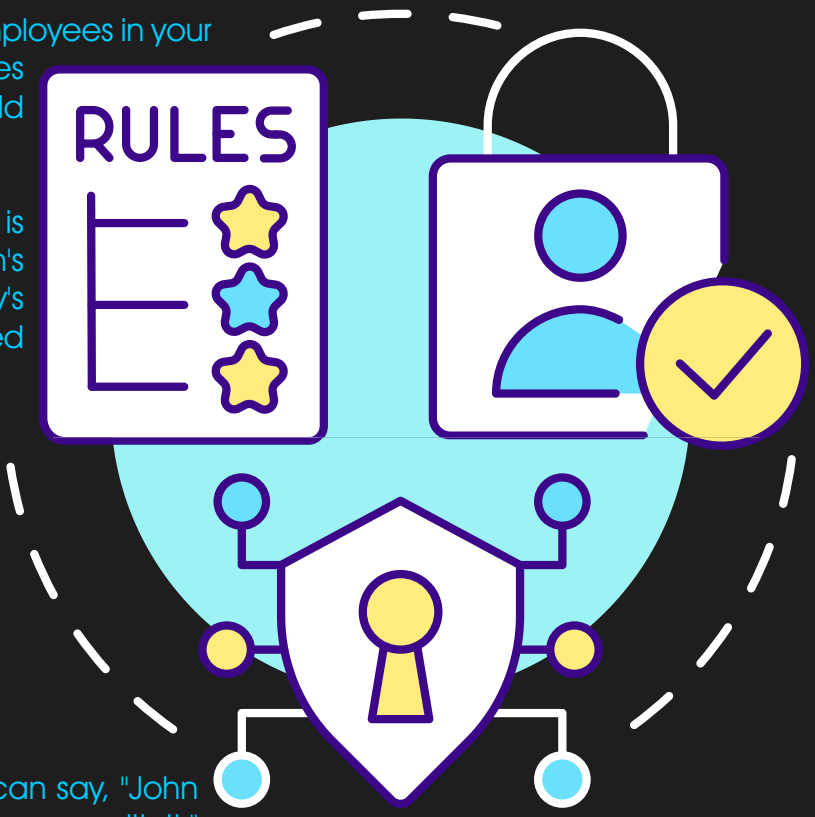
- Introduction to AWS
- Networking Fundamentals
- VPC Overview
- VPC Components
- VPC Peerings
- Creating and Configuring VPCs
- AWS Direct Connect
- VPN Connections
- Transit Gateway
- Implementing Connectivity
- Security Groups
- Network ACLs
- Load Balancers
- Introduction to DNS
- AWS Route 53 Overview
- DNS Configuration
- Setting Up DNS
- AWS CloudWatch
- VPC Flow Logs
- Troubleshooting Network Issues

Additional Tasks

- VPC Peering Implementation
- Multi-Region High Availability
- Load Balancing Configuration
- AWS Direct Connect Setup
- Custom DNS with Route 53
- Security Groups and Network ACLs
- VPC Flow Logs and Analysis
- BGP Peering with AWS
- Distributed Application Firewall
- Transit Gateway and Network Hub
- Hybrid Cloud Configuration
- Content Delivery Network (CDN) Integration

Identity And Access Management

Why Identity and Access Management in AWS?



Imagine you're managing a big team of employees in your company. Each employee has specific roles and responsibilities, and not everyone should have access to everything, right?

AWS Identity and Access Management (IAM) is like the digital version of managing your team's access to different parts of your company's resources in the cloud. Here's why we need AWS IAM:

Security:
IAM helps you control who can access your company's digital resources in AWS. Justlike you wouldn't want unauthorized people in your office, you don't want unauthorized access to
your cloud resources.

Permissions:
IAM lets you define who can do what. You can say, "John can read this document,but only Sarah can edit it." Similarly, in AWS, you can grant different permissions to differentusers or services.

Least Privilege: It follows the principle of "least privilege," which means giving people orservices only the access they need to do their jobs. So, if someone's job is to managedatabases, they don't need access to your billing information.

Audit Trail: IAM keeps a record of who did what. Just like you have a record of who entered your office, IAM helps track who made changes to your cloud resources.

Resource Sharing: If your company collaborates with others, IAM lets you securely share specific resources without giving away your whole digital "office."

In simple terms, AWS IAM is like the security guard for your digital office in the cloud. It ensures that the right people and services have the right access to your resources while keeping the wrong ones out, just like you manage access to different parts of your physical office for different employees.

What you would learn ?

- Introduction to AWS
- Introduction to IAM
- IAM Components
- Creating IAM Users
- Password Policies
- Multi-Factor Authentication (MFA)
- Managing IAM Users
- Creating IAM Groups
- IAM Roles
- Permissions Policies
- Group and Role Management
- IAM Policy Conditions
- Identity Federation
- Cross-Account Access
- Implementing Advanced IAM Scenarios
- IAM Best Practices
- IAM Access Analyzer
- Introduction to AWS Organizations
- Service Control Policies (SCPs)
- Cross-Account IAM Roles
- Setting Up AWS Organizations and Implementing Cross-Account Roles

Additional Tasks

- IAM Role-Based Access Control (RBAC) Implementation
- Cross-Account IAM Role Setup
- IAM Policy Compliance Checker
- IAM and Multi-Factor Authentication (MFA) Integration
- AWS Organizations and SCP Management
- IAM Credential Rotation Automation
- IAM Security Baseline Assessment
- IAM Security Incident Response Plan

Compute with Elastic Compute Cloud

Why

Imagine you're managing a big team of employees in your company. Each employee has specific roles and responsibilities, and not everyone should have access to everything, right?

AWS Identity and Access Management (IAM) is like the digital version of managing your team's access to different parts of your company's resources in the cloud. Here's why we need AWS IAM

Virtual Servers:
EC2 provides virtual servers in the cloud, similar to having extra cooking stations. You can quickly create, customize, and use these virtual servers for various tasks.

Scalability:
Just as a restaurant might need more cooking stations during busy hours, with Ec2, you can easily scale up (add more servers) or down (remove servers) to match your application's demands.

Flexibility:
EC2 offers a wide range of server types, like having different kitchen tools. You can choose the right server type for your specific needs, whether it's for hosting a website, running an app, or doing complex calculations.

Cost-Efficiency: Like a restaurant using only the cooking stations it needs, you only pay for the EC2 instances you use, making it cost-effective.

Global Reach: EC2 is available in different regions worldwide, similar to opening new branches of your restaurant. This allows you to serve customers globally with low-latency access.

In simple terms, AWS EC2 is like having a versatile kitchen in the cloud where you can create, modify, and use virtual cooking stations (servers) that match your needs, whether it's for a small project or a large-scale application, and you only pay for what you use, just like you use the cooking stations in your restaurant as needed.

What you would learn ?

- Azure Resource Hierarchy
- Azure IaaS Overview
- Azure VM Basics
- VM Deployment
- VM Management and Monitoring
- VM High Availability using Availability Sets and Virtual Machine Scalesets
- Using Load Balancers and Application Gateways
- VM Disaster Recovery
- Custom VM Images
- Hybrid Clouds

Additional Tasks

- High Availability Web Application Deployment
- Microservices Architecture Deployment
- Serverless Integration
- Multi-Region Deployment
- Continuous Integration and Continuous Deployment (CI/CD) Pipeline
- Real-Time Blue-Green Deployments
- Self-Healing Infrastructure

Compute with PaaS

Why

Imagine you're building a house, and you need different professionals like carpenters, plumbers, and electricians to work together efficiently. Each professional has specific tools and skills to do their job.

AWS Platform as a Service (PaaS) services are like having a team of skilled professionals who
provide you with specialized tools and support to build your software applications. Here's why Cloud DevOps Engineers need AWS PaaS services: +

Simplified Development:
PaaS services provide pre-built tools and resources, just like how professionals come with their own tools. This makes it easier and faster to develop and deploy software applications.
Scalability:

Just as your house can grow with additional rooms, PaaS services allow your applications to scale easily as your user base or workload increases. You don't need to worry about buying new tools; AWS provides them as needed.

Reduced Maintenance:
With PaaS, AWS takes care of the underlying infrastructure and tools, similar to how professionals maintain their own equipment. This means you can focus on building and improving your application rather than managing servers and software.

Security and Updates:
AWS PaaS services come with security features and regular updates, like professionals following safety standards and best practices to ensure your house is safe and up-to-date.

Collaboration:
Just as professionals work together seamlessly, PaaS services are designed to support collaboration among developers and teams, making it easier to build complex software systems.

In simple terms, AWS PaaS services are like a team of skilled professionals who bring their tools, expertise, and teamwork to help you build and maintain your software applications. This allows Cloud DevOps Engineers to focus on creating great software without worrying about the underlying technical details.

What you would learn ?

- Introduction to AWS PaaS
- AWS Elastic Beanstalk
- Elastic Beanstalk Deployment
- Customizing Elastic Beanstalk Environments
- Introduction to AWS App Runner

Compute with Serverless

Why

Imagine you're organizing a big event like a party or a conference. You don't want to worry about setting up and managing all the details, right? You'd rather focus on making the event enjoyable for your guests.

AWS Serverless Services are like event planners for your software applications. Here's why Cloud DevOps Engineers need AWS Serverless Services:

No Infrastructure Worries:
Just as an event planner handles all the setup, AWS Serverless Services take care of the infrastructure for your applications. You don't need to worry about servers, storage, or maintenance.

Pay Only for Usage:
When you hire an event planner, you pay for their services only when you need them. Similarly, with AWS Serverless, you only pay for the computing resources you use when your application runs, which can save you money.

Instant Scaling:
Like an event planner who can quickly adapt to a growing guest list, Serverless Services can automatically scale your application up or down to handle changes in demand without you needing to do anything.

Faster Development:
Just as an event planner can organize things faster, Serverless Services allow you to develop and deploy applications more quickly because you don't have to deal with the complexities of traditional server setups.

Focus on Code:
You can concentrate on writing code and building features, much like an event planner focuses on creating a great event experience for your guests, rather than managing behind the-scenes logistics.

In simple terms, AWS Serverless Services act as event planners for your software applications, handling all the technical details, scaling, and maintenance so that Cloud DevOps Engineers can focus on building amazing applications without worrying about the infrastructure.

What you would learn ?

- Introduction to Serverless
- AWS Lambda Basics
- AWS SAM and Serverless Framework
- Setting Up an AWS Account
- Lambda Functions
- Environment Variables and Secrets
- Versioning and Aliases
- AWS API Gateway
- Amazon S3 Events
- Amazon EventBridge
- Building Serverless Applications
- AWS Step Functions
- Serverless Data Processing

Additional Tasks

- Serverless Web Application
- Continuous Integration and Deployment (CI/CD) Pipeline
- Serverless RESTful API
- AWS Lambda Functions for Event-Driven Automation
- Custom API Gateway

Storage

Why

Imagine you have a collection of valuable items, and you want a safe and organized place to store them. AWS Storage services are like secure, digital storage lockers in the cloud. Here's why Cloud DevOps Engineers need AWS Storage

Data Safety:
AWS Storage provides a reliable and secure place to keep your data, similar to a highly secure vault for your valuable items. Your data is protected from loss or damage.

Scalability:
Just as you can get a bigger locker if you have more items, AWS Storage allows you to easily scale up your storage space as your data grows.

Accessibility:
You can access your stored data from anywhere with an internet connection, much like having access to your items in the locker no matter where you are.

Backup and Recovery:
AWS Storage services offer features like automatic backups, making it easy to recover your data in case of accidental deletion or other issues.

Cost-Efficiency:
You only pay for the storage space you use, similar to paying rent only for the space you occupy in a storage facility. This makes it cost-effective

In simple terms, AWS Storage is like having a secure digital storage locker in the cloud for your data. It keeps your data safe, allows you to access it from anywhere, and you only pay for the space you actually use, just like renting storage space for your physical belongings.

What you would learn ?

- Introduction to AWS Storage Services
- AWS S3 (Simple Storage Service)
- AWS EBS (Elastic Block Store)
- Amazon S3 Object Storage
- S3 Data Management
- S3 Security and Access Control
- Attaching and Detaching EBS Volumes
- EBS Snapshots
- Introduction to AWS Storage Gateway
- File Gateway

- Volume Gateway
- Hybrid Cloud Setup
- AWS Data Transfer Services
- Amazon S3 Transfer Acceleration
- AWS Import/Export
- AWS Backup Services
- Data Lifecycle Policies
- Data Archiving

Additional Tasks

- Backup and Restore Automation
- Multi-region Data Replication
- Serverless File Upload Service
- Data Archiving and Retention
- Media Streaming Service
- Content Delivery Network (CDN) Integration
- Secure File Sharing and Collaboration

Databases

Why

Imagine you're running a busy restaurant, and you need a reliable system to store all your recipes, customer orders, and payment information. AWS Database services are like digital kitchens where you can store, organize, and access all this essential data. Here's why Cloud DevOps Engineers need AWS Database services:

Data Organization:
Just as a well-organized kitchen helps chefs find ingredients quickly, AWS Databases help organize data efficiently, making it easy to access and manage.

Data Security:
AWS Databases are like secure vaults for your data, ensuring it's protected from unauthorized access or accidents, much like keeping your restaurant's secret recipes safe.

Scalability:
When your restaurant gets more customers, you need more space and resources. Similarly, AWS Databases can easily scale up to handle growing amounts of data and users.

Reliability:
AWS Databases provide consistent and reliable access to data, similar to how a reliable kitchen ensures that meals are prepared consistently every day.

Data Analysis:
Just as a chef reviews customer feedback to improve recipes, AWS Databases enable you to analyze data to make informed decisions and enhance your applications.

In simple terms, AWS Database services act like digital kitchens for your data. They keep it organized, secure, and accessible, allowing you to run applications smoothly, just as a well-organized kitchen helps a restaurant serve delicious meals to its customers.

What you would learn ?

- Introduction to AWS Database Services
- AWS RDS (Relational Database Service) Basics
- Relational Databases Overview
- Creating and Managing RDS Instances
- High Availability and Failover
- Introduction to Amazon Aurora
- Amazon Aurora vs. Traditional Databases
- Deploying and Scaling Aurora
- Amazon DynamoDB
- Amazon DocumentDB
- Amazon KeySpaces
- Data Backup and Disaster Recovery
- Monitoring and Performance Optimization
- Cost Optimization

Additional Tasks

- E-commerce Database Scaling
- Healthcare Data Security
- Multi-region Data Replication
- Data Catalog and Search Engine

Integration and Messaging Services

Why

Imagine you're in charge of organizing a big orchestra performance with many musicians playing different instruments. AWS Integration and Messaging Services are like the conductor's baton and the communication system that ensure everyone plays in harmony. Here's why Cloud DevOps Engineers need these services in the context of an orchestra:

Imagine you're in charge of organizing a big orchestra performance with many musicians playing different instruments. AWS Integration and Messaging Services are like the conductor's baton and the communication system that ensure everyone plays in harmony. Here's why Cloud DevOps Engineers need these services in the context of an orchestra

Conductor's Baton (Coordination):
The conductor uses the baton to coordinate when each musician should play their instrument. Similarly, AWS Integration and Messaging Services coordinate when different parts of your software should perform their tasks, ensuring they work together seamlessly.

Sheet Music (Messages):
Musicians follow sheet music to know what to play. AWS Messaging Services are like the messages written on the sheet music. They tell different parts of your software what to do and when, just like notes on a page guide musicians on which notes to play. Real-Time Communication (Concert Timing): During the performance, the conductor signals musicians in real-time, indicating when to start, stop, or change the tempo. AWS Messaging Services enable real-time communication between different components of your software, allowing them to respond quickly to events or changes.

Adaptability (Orchestra Size):
If you add more musicians to the orchestra, the conductor and messaging system can adapt to include them, ensuring the music remains in harmony. Similarly, AWS Integration and Messaging Services can scale to accommodate additional components or
services as your software system grows.

Reliability (No Miscommunication):
In an orchestra, there's no room for miscommunication; everyone must play their part correctly. AWS Messaging Services ensure reliable communication, making sure that messages are delivered accurately to the right components, just like the conductor ensures musicians play the correct notes.

In this analogy, AWS Integration and Messaging Services play a crucial role in orchestrating the various parts of your software system, ensuring they work together harmoniously, communicate in real-time, and adapt to changes while maintaining reliability, much like a conductor and the communication system do in a grand orchestra performance.

What you would learn ?

- Introduction to Integration and Messaging Services
- AWS Simple Queue Service (SQS) Basics
- AWS Simple Notification Service (SNS)
- SQS Message Queues
- Message Lifecycle
- SQS Security and Access Control
- SNS Pub/Sub Messaging
- Topic Creation and Configuration
- SNS Security and Access Control
- Introduction to AWS Step Functions
- State Machines
- Building Workflow Automation
- Introduction to AWS EventBridge
- Event Bus and Events
- EventBridge Security and Access Control

Additional Tasks

- API Gateway and Management Platform
- Serverless Workflow Automation
- Microservices Communication Hub
- Cross-Platform Messaging Solution

Management and Governance

Why

Think of AWS Management and Governance as the rules, tools, and procedures that help keep a large and complex organization running smoothly. Here's why Cloud DevOps Engineers need these services:

Organization and Order: Just like a school needs rules and systems to keep things organized, AWS Management and Governance help organizations set up the right rules and systems to manage their cloud resources efficiently.

Cost Control: Imagine a household budget that ensures you don't overspend. AWS Management and Governance helps control costs by tracking how much you're spending on cloud services and alerting you if it goes over budget.

Security and Compliance: Just as a bank needs security measures to protect your money, AWS Management and Governance services help ensure that your cloud resources are secure and comply with regulations.

Resource Tracking: These services act like a GPS for your cloud resources, helping you keep track of what's running, where it's running, and who's using it.

Automation: Much like a dishwasher makes kitchen chores easier, AWS Management and Governance can automate routine tasks, making it easier to manage your cloud resources efficiently.

In simple terms, AWS Management and Governance are like the housekeeping and organizational tools for your cloud environment. They help you keep everything in order, control costs, maintain security, and automate repetitive tasks, just like rules and systems help maintain order in a school or household.

What you would learn ?

- Introduction to AWS Management and Governance Services
- AWS Organizations
- AWS Control Tower
- AWS Cost Explorer
- AWS Budgets
- AWS Cost and Usage Reports
- AWS Resource Groups
- AWS Tagging Strategies
- AWS Systems Manager
- AWS Trusted Advisor
- AWS Config Rules
- AWS Organizations Policies
- AWS CloudFormation

Migration

Why

Imagine you're moving to a new house. You have a lot of furniture and belongings in your old house, and you want to take everything with you to the new place. However, the new house is different in some ways - the layout might be different, and some things need to be set up differently.

AWS Migrations, in a way, are like moving your digital "stuff" (applications, data, and systems) from your old "house" (your on-premises data center or another cloud provider) to your new "house" in AWS, which is Amazon's cloud platform. Here's why we need Amazon Migrations:

Cost Efficiency:
AWSoften offers cost savings compared to maintaining your own data center. Migrating to AWS can reduce hardware and maintenance costs.

Scalability:
AWS provides the ability to scale up or down based on your needs. If your applications suddenly become more popular, AWS can handle the increased traffic.

Security and Compliance:
AWS has robust security measures and compliance certifications. Migrating to AWS can help ensure your data and applications meet security and compliance requirements.

Flexibility:
AWS supports a wide range of technologies and services. Migrating allows you to take advantage of new technologies and services that can benefit your business.

Disaster Recovery:
AWS provides built-in disaster recovery options. Migrating to AWS can improve your ability to recover from unexpected events.

Global Reach:
AWS has data centers in many regions worldwide. Migrating to AWS can help you reach a global audience more effectively.

In simple terms, AWS Migrations help businesses move their digital "stuff" to a new, more costeffective, and flexible "house" in the cloud, where they can better manage their applications and data while taking advantage of the latest technology and security features.

What you would learn ?

- Landing Zones
- Virtual machine Migration P2V (Physical to Virtual Migration)
- Virtual machine Migration V2V (Virtual to Virtual Migration)
- Database Migration
- Storage Migration

Reference Architectures

What you would learn ?

- Introduction to Cloud Reference Architectures
- Cloud Design Principles and Patterns
- AWS Well-Architected Framework
- AWS Reference Architectures
- Hybrid and Multi-Cloud Architectures
- Serverless and Event-Driven Architectures

Real time Projects

- Real-time Monitoring and Alerting Dashboard
- Continuous Integration/Continuous Deployment (CI/CD) Pipeline
- Serverless Web Applications
- Event-Driven Microservices
- Azure Functions Orchestration
- Hybrid Cloud Integration