About the course

Cert4upro's AWS Solution Architect Certification Training is created by industry professionals as per the industry standards and demands. This course helps you prepare for the AWS Certified Solutions Architect (CSA) - Associate Exam. With Cert4upro's instructor-led sessions, you will be able to productively deploy secure and strong applications on AWS. The course will help you identify the applicable AWS service based on data, compute or security requirements.

Amazon Web Services (AWS) certification training is fundamental for every aspiring AWS certified solutions architect. You will master AWS architectural principles and services such as IAM, VPC, EC2, EBS and uplift your career to the cloud, and beyond with this AWS solutions architect course.

The AWS Solutions Architect Certification training will empower you to design, plan and scale AWS implementations apply over 50+ cloud computing services. The course is coordinated with the latest AWS exam featuring Amazon designated best practices.

AWS -Rapidly Growing Public Cloud in the World:

AWS was officially launched in 2006 and there were around 180,000 developers on the platform by 2007. By 2015, AWS revenue was $6Billion USD per annum and since then revenues have doubled and are growing at an epidemic rate. AWS is frequently boosting its growth every quarter. we are likely to eyewitness remarkable acceleration in AWS growth in future.

AWS Careers offers a top range of wages:

AWS Certified Solutions Architects -Associate professionals earn an average salary of $121,292, over $13,000 higher than the average salary of top 15 IT certified professionals. The salaries for AWS skills in premium areas like Austin, San Francisco, Washington, or Boston are 25% higher than usual. The average salary package of an AWS solution architect as per the Forbes report.

Who should do this course?

- Solution architecture is a practice of designing, describing, and managing the solution engineering in relation to specific business problems.
- A solution architect is a person in charge of leading the practice and introducing the overall technical vision for a solution.
- While the practice can be managed in-house, there are companies that provide solution architecture consulting as a specific set of services.

- Anybody who is zeal to learn and make a career in AWS / Cloud computing can take AWs courses. Even non-technical background person can be done AWs certification course. Having the basic IT skills will be an added advantage but it is not mandatory. If you are having a technical background it will be easy to manage things like database, server without any training. If you are from a non-tech background it will be difficult initially but, with a little bit of effort, you can get the certification and a good job.

Skills to learn:

Here are the skills cloud architects need to learn this in-demand role.
Here are seven skills cloud architects need to learn this in-demand role. To be a Solution Architect one should have set of skills they are:

You need excellent Programming and Networking Skills. Because an AWS solutions architect must deal with a lot of network and configuration-related queries, it is very important to have good networking knowledge. Should have knowledge about Cloud Storage and AWS Cloud Architecture. One should have solid experience using AWS core services: EC2, S3, VPC, ELB, automation tools like Chef/Puppet, CI tools like Jenkins. You should know how to build and release management across multiple environments and infrastructure.

Course Curriculum

<u>Module 1</u>

Introduction to Cloud Computing & AWS
- What is Cloud
- Computing Cloud Service & Deployment Models
- How AWS is the leader in the cloud domain
- Various cloud computing products offered by AWS
- Introduction to AWS S3, EC2, VPC, EBS, ELB, AMI
- AWS architecture and the AWS Management Console, virtualization in AWS (Xen hypervisor)
- What is auto-scaling
- AWS EC2 best practices and cost involved.

Hands-on Exercise – Setting up of AWS account, how to launch an EC2 instance, the process of hosting a website and launching a Linux Virtual Machine using an AWS EC2 instance.

Module 2

Elastic Compute and Storage Volumes

- Introduction to EC2
- Regions & Availability Zones(AZs)
- Pre-EC2, EC2 instance types
- Comparing Public IP and Elastic IP Demonstrating how to launch an AWS EC2 instance
- Introduction to AMIs, Creating and Copying an AMI
- Introduction to EBS
- EBS volume types
- EBS Snapshots
- Introduction to EFS
- Instance tenancy- Reserved and Spot instances
- Pricing and Design Patterns.

Hands-on Exercise –
1. Launching an EC2 instance
2. Creating an AMI of the launched instance
3. Copying the AMI to another region
4. Creating an EBS volume
5. Attaching the EBS volume with an instance
6. Taking backup of an EBS volume
7. Creating an EFS volume and mounting the EFS volume to two instances.

Module 3

Load Balancing, Autoscaling and DNS

- Introduction to Elastic Load Balancer
- Types of ELB – Classic, Network and Application
- Load balancer architecture
- Cross-zone load balancing
- Introduction to Auto Scaling, vertical and horizontal scaling, the lifecycle of Auto Scaling
- Components of Auto Scaling, scaling options and policy, instance termination
- Using load balancer with Auto Scaling
- Pre-Route 53 – how DNS works
- Routing policy, Route 53 terminologies, Pricing.

Hands-on Exercise –
1. Creating a Classic ELB
2. Creating an Application ELB

3. Creating an auto-scaling group

4. Configuring an auto-scaling group

5. Integrating ELB with Auto Scaling

6. Redirect traffic from domain name to ELB using Route 53.

Module 4

Virtual Private Cloud

- What is Amazon VPC,
- VPC as a networking layer for EC2
- IP address and CIDR notations,
- Components of VPC – network interfaces, route tables, internet gateway, NAT,
- Security in VPC – security groups and NACL, types of VPC, what is a subnet, VPC peering with scenarios, VPC endpoints, VPC pricing and design patterns.

Hands-on Exercise –

1. Creating a VPC and subnets,

2. Creating a 3 Tier architecture with security groups,

3. NACL, Internet gateway and NAT gateway,

4. Creating a complete VPC architecture.

Module 5

Storage - Simple Storage Service (S3)

- Introduction to AWS storage
- Pre-S3 – online cloud storage
- API, S3 consistency models
- Storage hierarchy, buckets in S3
- Objects in S3, metadata and storage classes, object versioning, object lifecycle management, cross-region replication, data encryption, connecting using VPC endpoint, S3 pricing.

Hands-on Exercise –

1. Creating an S3 bucket

2. Uploading objects to the S3 bucket

3. Enabling object versioning in the S3 bucket

4. Setting up lifecycle management for only a few objects

5. Setting up lifecycle management for all objects with the same tag

6. Static website hosting using S3.

Module 6

Databases and In-Memory Data Stores

- What is a database, types of databases, databases on AWS
- Introduction to Amazon RDS
- Multi-AZ deployments, features of RDS
- Read replicas in RDS, reserved DB instances
- RDS pricing and design patterns.
- Introduction to Amazon Aurora, benefits of Aurora, Aurora pricing and design patterns
- Introduction to DynamoDB, components of DynamoDB, DynamoDB pricing and design patterns
- What is Amazon Redshift, advantages of Redshift
- What is ElastiCache, why ElastiCache.

Hands-on Exercise –
1. Launching a MySQL RDS instance
2. Modifying an RDS instance
3. Connecting to the DB instance from your machine
4. Creating a multi-az deployment
5. Create an Aurora DB cluster
6. Creating an Aurora replica
7. Creating a DynamoDB table.

Module 7

Management and Application Services

- Introduction to CloudFormation
- CloudFormation components
- CloudFormation templates
- The concept of Infrastructure-as-a-code
- Functions and pseudo parameters
- Introduction to Simple Notification Service, how does SNS work
- Introduction to Simple Email Service, how does SES work
- Introduction to Simple Queue Service, how does SQS work.

Hands-on Exercise –
1. Creating a CloudFormation stack
2. Launching a t2.micro
3. EC2 instance using CloudFormation
4. Using CloudFormation to automate an architectural deployment

5. Creating an SNS topic, creating a subscription within the topic
6. Setting up SES and sending a mail
7. Creating an SQS queue and sending a sample message.

Module 8

Access Management and Monitoring Services

- Pre-IAM, why access management
- Amazon Resource Name (ARN), IAM features
- Multi-factor authentication (MFA) in IAM, JSON
- IAM policies, IAM permissions, IAM roles, identity federation, pricing
- Introduction to CloudWatch, metrics and namespaces, CloudWatch architecture, dashboards in CW, CloudWatch alarms, CloudWatch logs, pricing and design patterns
- Introduction to CloudTrail, tracking API usage.

Hands-on Exercise –
1. Creating IAM users and a group
2. creating an IAM policy and attach it to the group
3. creating an IAM role
4. Setup MFA for a user
5. Creating a CloudWatch dashboard and add metrics
6. Create a CloudWatch alarm which triggers according to CPU Utilization of an EC2 instance
7. Creating a billing alarm
8. Creating a log group
9. Creating a trail.

Module 9

Automation and Configuration management

- What is AWS Lambda
- How Lambda is different from EC2
- Benefits and limitations of Lambda
- How does Lambda work
- Use cases of Lambda, Lambda concepts
- Integration S3 with Lambda
- What is Elastic Beanstalk, how does Beanstalk work, Beanstalk concepts, Beanstalk pricing
- What is configuration management

- What is AWS OpsWorks, AWS OpsWorks benefits
- CloudFormation vs OpsWorks, services in OpsWorks, AWS OpsWorks Stacks, OpsWorks pricing.

Hands-on Exercise –

1. Creating a Lambda function
2. Setting up Lambda triggers and destinations
3. Creating an Elastic Beanstalk application
4. Uploading a new version of the application to Beanstalk
5. Creating a stack in OpsWorks
6. Launching the instance using OpsWorks and automatically installing the application.

Module 10

AWS Migration

- What is Cloud migration
- Why migration is important
- Migration process in AWS, the 6 R's migration strategy
- Virtual machine migration, migrating a local vm onto the AWS cloud
- Migrating databases using Database Migration Service (DMS)
- Migrating a local database to RDS
- Migrating an on-premises database server to RDS using DMS, other migration services.