HI-TECH INSTITUTION

CORPORATE CAREER ENHANCEMENT TRAININGS

OUR ROOT LEVEL TRAINING WILL GIVE YOU BETTER GROWTH

Hi-Tech Institution

ABOUT US

Our Vision:

To provide better training by full filing the requirements of our trainee.

Our Mission:

We always ensure to give practical based training. And we make the candidates to get good hands-on experience on any platform.

Philosophy:

Our Root Level Training Will give you Better Growth.

We successfully survived around 5 years in the IT field. Started this is as small Training room. But now we are having 5 branches across India.

Certified Trainers taking the session on various domain with any level of doubts clarification.

For More Details: **www.hitechins.in**

Write feedback to **operations@hitechins.in**

AWS Interview Questions

Part-1

1) Explain what AWS is?

AWS stands for Amazon Web Service; it is a collection of remote computing services also known as a cloud computing platform. This new realm of cloud computing is also known as IaaS or Infrastructure as a Service.

2) Mention what the key components of AWS are?

The key components of AWS are

- **Route 53:** A DNS web service
- **Simple E-mail Service:** It allows sending e-mail using RESTFUL API call or via regular SMTP
- **Identity and Access Management:** It provides enhanced security and identity management for your AWS account
- **Simple Storage Device or (S3):** It is a storage device and the most widely used AWS service
- **Elastic Compute Cloud (EC2):** It provides on-demand computing resources for hosting applications. It is handy in case of unpredictable workloads
- **Elastic Block Store (EBS):** It offers persistent storage volumes that attach to EC2 to allow you to persist data past the lifespan of a single Amazon EC2 instance
- **CloudWatch:** To monitor AWS resources, It allows administrators to view and collect key Also, one can set a notification alarm in case of trouble.

3) Explain what S3 is?

S3 stands for Simple Storage Service. You can use S3 interface to store and retrieve any amount of data, at any time and from anywhere on the web. For S3, the payment model is "pay as you go."

4) What is AMI?

AMI stands for Amazon Machine Image. It's a template that provides the information (an operating system, an application server, and applications) required to launch an instance, which is a copy of the AMI running as a virtual server in the cloud. You can launch instances from as many different AMIs as you need.

5) Mention what the relationship between an instance and AMI is?

From a single AMI, you can launch multiple types of instances. An instance type defines the hardware of the host computer used for your instance. Each instance type provides different computer and memory capabilities. Once you launch an instance, it looks like a traditional host, and we can interact with it as we would with any computer.

6) What does an AMI include?

An AMI includes the following things

- A template for the root volume for the instance
- Launch permissions decide which AWS accounts can avail the AMI to launch instances
- A block device mapping that determines the volumes to attach to the instance when it is launched

7) How can you send a request to Amazon S3?

Amazon S3 is a REST service, and you can send a request by using the REST API or the AWS SDK wrapper libraries that wrap the underlying Amazon S3 REST API.

8) Mention what the difference between Amazon S3 and EC2 is?

The difference between EC2 and Amazon S3 is that

EC2	S3
1.It is a cloud web service used for hosting your application	1.It is a data storage system where any amount of data can be stored
2.It is like a huge computer machine which can run either Linux or Windows and can handle application like PHP, Python, Apache or any databases	2.It has a REST interface and uses secure HMAC-SHA1 authentication keys

9) How many buckets can you create in AWS by default?

By default, you can create up to 100 buckets in each of your AWS accounts.

10) Explain can you vertically scale an Amazon instance? How?

Yes, you can vertically scale on Amazon instance. For that

- Spin up a new larger instance than the one you are currently running
- Pause that instance and detach the root webs volume from the server and discard
- Then stop your live instance and detach its root volume
- Note the unique device ID and attach that root volume to your new server
- And start it again

11) Explain what T2 instances is?

T2 instances are designed to provide moderate baseline performance and the capability to burst to higher performance as required by the workload.

12) In VPC with private and public subnets, database servers should ideally be launched into which subnet?

With private and public subnets in VPC, database servers should ideally launch into private subnets.

13) Mention what the security best practices for Amazon EC2 are?

For secure Amazon EC2 best practices, follow the following steps

- Use AWS identity and access management to control access to your AWS resources
- Restrict access by allowing only trusted hosts or networks to access ports on your instance
- Review the rules in your security groups regularly
- Only open up permissions that you require
- Disable password-based login, for example, launched from your AMI

14) Explain how the buffer is used in Amazon web services?

The buffer is used to make the system more robust to manage traffic or load by synchronizing different component. Usually, components receive and process the requests in an unbalanced way. With the help of buffer, the components will be balanced and will work at the same speed to provide faster services.

15) While connecting to your instance what are the possible connection issues one might face?

The possible connection errors one might encounter while connecting instances are

- Connection timed out
- User key not recognized by the server
- Host key not found, permission denied
- An unprotected private key file
- Server refused our key or No supported authentication method available
- Error using MindTerm on Safari Browser
- Error using Mac OS X RDP Client

16) What are key-pairs in AWS?

Key-pairs are secure login information for your virtual machines. To connect to the instances, you can use key-pairs which contain a public-key and private-key.

17) What are the different types of instances?

Following are the types of instances:

- General purpose
- Computer Optimized
- Memory Optimized
- Storage Optimized

18) Is the property of broadcast or multicast supported by Amazon VPC?

No, currently Amazon VPI not provide support for broadcast or multicast.

19) How many Elastic IPs is allows you to create by AWS?

5 VPC Elastic IP addresses are allowed for each AWS account.

20) Explain default storage class in S3

The default storage class is a Standard frequently accessed.

21) What are the roles?

Roles are used to providing permissions to entities which you can trust within your AWS account. Roles are very similar to users. However, with roles, you do not require to create any username and password to work with the resources.

22) What are the edge locations?

Edge location is the area where the contents will be cached. So, when a user is trying to accessing any content, the content will automatically be searched in the edge location.

23) What is VPC?

VPC stands for Virtual Private Cloud. It allows you to customize your networking configuration. It is a network which is logically isolated from another network in the cloud. It allows you to have your IP address range, internet gateways, subnet and security groups.

24) Explain snowball

Snowball is a data transport option. It used source appliances to a large amount of data into and out of AWS. With the help of snowball, you can transfer a massive amount of data from one place to another. It helps you to reduce networking costs.

25) What is a redshift?

Redshift is a big data warehouse product. It is fast and powerful, fully managed data warehouse service in the cloud.

26) What are the advantages of auto-scaling?

Following are the advantages of autoscaling

- Offers fault tolerance
- Better availability
- Better cost management

27) What is meant by subnet?

A large section of IP Address divided into chunks is known as subnets.

28) Can you establish a Peering connection to a VPC in a different region?

No, It's only possible between VPCs in the same region.

29) What is SQL?

Simple Queues Services also known as SQL. It is distributed queuing service which acts as a mediator for two controllers.

30) How many subnets can you have per VPC?

You can have 200 subnets per VPC.

31) DNS and Load Balancer service comes under which type of cloud service?

DNS and Load Balancer and DNS services come under IAAS-storage cloud service.

32) What is the role of AWS CloudTrail?

CloudTrail is a specially designed tool for logging and tracking API calls. It helps to audit all S3 bucket accesses.

33) When EC2 officially launched?

EC2 officially launched in the year 2006.

34) What is SimpleDB?

SimpleDB is a data repository of structure record which encourages data coubts and indexing both S3 and EC2are called SimpleDB.

35) Explain Amazon ElasticCache

Amazon Elasticcache is a web service which makes it easy to deploy, scale and store data in the cloud.

36) What is AWS Lambda?

Lambda is an Amazon compute service which allows you to run code in the AWS Cloud without managing servers.

37) Name the types of AMI provided by AWS

The types of AMI provided by AWS are:

- Instance store backed
- EBS backed

38) Name the AWS service exists only to redundantly cache data and images?

AWS Edge locations are service which redundantly cache data and images.

39) Explain Geo Restriction in CloudFront

A Geo-restriction feature helps you to prevent users of specific geographic locations from accessing content which you're distributing through a CloudFront web distribution.

40) What is Amazon EMR?

EMR is a survived cluster stage which helps you to interpret the working of data structures before the intimation. Apache Hadoop and Apache Spark on the Amazon Web Services helps you to investigate a large amount of data. You can prepare data for the analytics goals and marketing intellect workloads using Apache Hive and using other relevant open source designs.

41) What is boot time taken for the instance stored backed AMI?

The boot time for an Amazon instance store-backend AMI is less than 5 minutes.

42) Do you need an internet gateway to use peering connections?

Yes, the Internet gateway is needed to use VPC (virtual private cloud peering) connections.

43) How to connect EBS volume to multiple instances?

We can't be able to connect EBS volume to multiple instances. Although, you can connect various EBS Volumes to a single instance.

44) List different types of cloud services

Various types of cloud services are:

- Software as a Service (SaaS),
- Data as a Service (DaaS)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS).

45) State the difference between An Instance and AMI

AMI is a template consisting software configuration part. For example Operating systems, applications, application server if you start an instance, a duplicate of the AMI in a row as an attendant in the cloud.

46) What are the different types of Load Balancer in AWS services?

Two types of Load balancer are:

1. Application Load Balancer
2. Classic Load Balancer

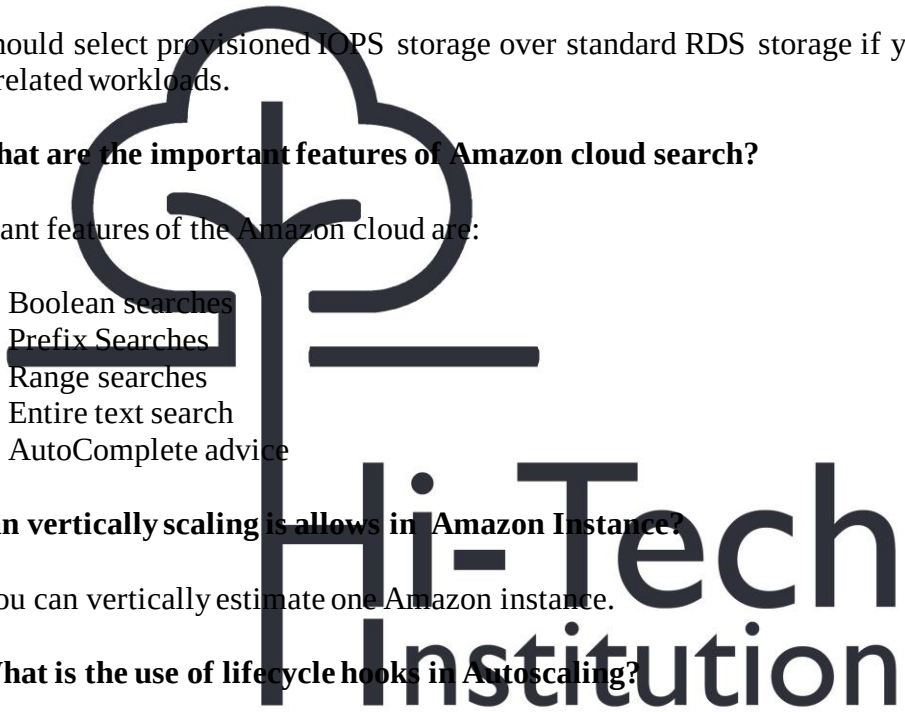
47) In which situation you will select provisioned IOPS over standard RDS storage?

You should select provisioned IOPS storage over standard RDS storage if you want to perform batch-related workloads.

48) What are the important features of Amazon cloud search?

Important features of the Amazon cloud are:

- Boolean searches
- Prefix Searches
- Range searches
- Entire text search
- AutoComplete advice



49) Can vertically scaling is allows in Amazon Instance?

Yes, you can vertically estimate one Amazon instance.

50) What is the use of lifecycle hooks in Autoscaling?

Lifecycle hooks are used for autoscaling to put an additional wait time to a scale in or scale out event.

51) What are various layers of Cloud Architecture explained in AWS training?

Different layers of cloud architecture are:

- Cloud controller
- Cluster controller
- Storage Controller
- Node Controller

52) What are the storage class available in Amazon s3?

Storage classes available with Amazon s3 are:

- Amazon S3 standard
- Amazon S3 standard-infrequent Access
- Amazon S3 Reduced Redundancy Storage
- Amazon Glacier

53) Name some of the DB engines which can be used in AWS RDS

1. MS-SQL DB
2. MariaDB
3. MYSQL DB
4. OracleDB
5. PostgreDB

Part-2

1)Compare AWS with OpenStack

Services	AWS	OpenStack
User Interface	GUI-Console API-EC2 API CLI -Available	GUI-Console API-EC2 API CLI -Available
Computation	EC2	Nova
File Storage	S3	Swift
Block Storage	EBS	Cinder
Networking	IP addressing Egress, Load Balancing Firewall (DNS), VPC	IP addressing load balancing firewall (DNS)
Big Data	Elastic MapReduce	-

2)What type of performance can you expect from Elastic Block Storage? How do you back it up and enhance the performance?

Performance of an elastic block storage varies i.e. it can go above the SLA performance level and after that drop below it. SLA provides an average disk I/O rate which can at times frustrate performance experts who yearn for reliable and consistent disk throughput on a server. Virtual AWS instances do not behave this way. One can backup EBS volumes through a graphical user interface like elasticfox or use the snapshot facility through an API call. Also, the performance can be improved by using Linux software raid and striping across four volumes.

3)Imagine that you have an AWS application that requires 24x7 availability and can be down only for a maximum of 15 minutes. How will you ensure that the database hosted on your EBS volume is backed up?

Automated backup are the key processes here as they work in the background without requiring any manual intervention. Whenever there is a need to back up the data, AWS API and AWS CLI play a vital role in automating the process through scripts. The best way is to prepare for a timely backup of EBS of the EC2 instance. The EBS snapshot should be stored on Amazon S3 and can be used for recovery of the database instance in case of any failure or downtime.

4)You create a Route 53 latency record set from your domain to a system in Singapore and a similar record to a machine in Oregon. When a user located in India visits your domain, to which location will he be routed to?

Assuming that the application is hosted on Amazon EC2 instance and multiple instances of the applications are deployed on different EC2 regions. The request is most likely to go to Singapore because Amazon Route 53 is based on latency and it routes the requests based on the location that is likely to give the fastest response possible.

5)Differentiate between on-demand instance and spot instance.

Spot Instances are spare unused EC2 instances which one can bid for. Once the bid exceeds the existing spot price (which changes in real-time based on demand and supply) the spot instance will be launched. If the spot price becomes more than the bid price then the instance can go away anytime and terminated within 2 minutes of notice. The best way to decide on the optimal bid price for a spot instance is to check the price history of last 90 days that is available on AWS console. The advantage of spot instances is that they are cost-effective and the drawback is that they can be terminated anytime. Spot instances are ideal to use when –

- There are optional nice to have tasks.
- You have flexible workloads which can be run when there is enough compute capacity.
- Tasks that require extra computing capacity to improve performance.

On-demand instances are made available whenever you require them and you need to pay for the time you use them on an hourly basis. These instances can be released when they are no longer required and do not require any upfront commitment. The availability fo these instances is guaranteed by AWS unlike spot instances.

The best practice is to launch couple of on-demand instances which can maintain minimum level of guaranteed compute resources for the application and add-on few spot instances whenever there is an opportunity.

6)How will you access the data on EBS in AWS?

Elastic block storage as the name indicates provides persistent, highly avaialble and high performance block level storage that can be attached to a running EC2 instance. The storage can formatted and mounted as a file system or the raw storage can be accessed directly.

7)What is the boot time for an instance store backed instance?

The boot time for an Amazon Instance Store -Backed AMI is usually less than 5 minutes.

8)Is it possible to vertically scale on an Amazon Instance? If yes, how?

Following are the steps to scale an Amazon Instance vertically –

- Spin up a larger Amazon instance than the existing one.
- Pause the exisiting instance to remove the root ebs volume from the server and discard.
- Stop the live running instance and detach its root volume.
- Make a note of the unique device ID and attach that root volume to the new server.
- Start the instance again.

9)Differentiate between vertical and horizontal scaling in AWS.

The main difference between vertical and horizontal scaling is the way in which you add compute resources to your infrastructure. In vertical scaling, more power is added to the existing machine while in horizontal scaling additional resources are added into the system with the addition of more machines into the network so that the workload and processing is shared among multiple devices. The best way to understand the difference is imagine that you are retiring your Toyota and buying a Ferrari because you need more horsepower. This is vertical scaling. Another way to get that added horsepower is not to ditch the Toyota for the Ferrari but buy another car. This can be related to horizontal scaling where you drive several cars all at once.

When the users are up to 100, an EC2 instance alone is enough to run the entire web application or the database until the traffic ramps up. Under such circumstances when the traffic ramps up, it is better to scale vertically by increasing the capacity of the EC2 instance to meet the increasing demands of the application. AWS supports instances up to 128 virtual cores or 488GB RAM.

When the users for your application grow up to 1000 or more, vertical cannot handle requests and there is need for horizontal scaling which is achieved through distributed file system, clustering, and load balancing.

10)What is the total number of buckets that can be created in AWS by default?

100 buckets can be created in each of the AWS accounts. If additional buckets are required, increase the bucket limit by submitting a service limit increase.

11)Differentiate between Amazon RDS, Redshift and Dynamo DB.

Features	Amazon RDS	Redshift	Dynamo DB
Computing Resources	Instances with 64 vCPU and 244 GB RAM	Nodes with vCPU and 244 GB RAM	Not specified, SaaS-Software as a Service.
Maintenance Window	30 minutes every week.	30 minutes every week.	No impact
Database Engine	MySQL, Oracle DB, SQL Server,Amazon Aurora, Postgre SQL	Redshift	NoSQL
Primary Usage Feature	Conventional Databases	Datawarehouse	Database for dynamically modified data
Multi A-Z Replication	Additional Service	Manual	In-built

12)An organization wants to deploy a two-tier web applications on AWS. The application requires complex query processing and table joins. However, the company has limited resources and requires high availability. Which is the best configuration that company can opt for based on the requirements?

DynamoDB deals with core problems of database scalability, management, reliability, and performance but does not have the functionalities of a RDBMS. DynamoDB does not render support for complex joins or query processing or complex transactions. You can run a relational engine on Amazon RDS or EC2 for this kind of a functionality.

13)If you have half of the workload on public cloud while the other half is on local storage, what kind of architecture will you use for this?

Hybrid Cloud Architecture

14)Is it possible to cast-off S3 with EC2 instances ? If yes, how ?

It is possible to cast-off S3 with EC2 instances using root approaches backed by native occurrence storage.

15)How will you configure an instance with the application and its dependencies , and make it ready to serve traffic?

You can acheive this with the use of lifecycle hooks. They are powerful as they let you pause the creation or termination of an instance so that you can sneak peak in and perform custom actions

like configuring the instance, downloading the required files, and any other steps that are required to make the instance ready.Every auto scaling group can have multiple lifecycle hooks.

16)**How can you safeguard EC2 instances running on a VPC ?**

AWS Security groups associated with EC2 instances can help you safeguard EC2 instances running in a VPC by providing security at the protocol and port access level. You can configure both INBOUND and OUTBOUND traffic to enables secured access for the EC2 instance.AWS security groups are much similar to a firewall-they contain set of rules which filter the traffic coming into and out of an EC2 instance and deny any kind of unauthorized access to EC2 instances.

17)How many EC2 instances can be used in a VPC ?

There is a limit of running up to a total of 20 on-demand instances across the instance family , you can purchase 20 reserved instances and request spot instances as per your dynamic spot limit region.

18)What are some of the key best practices for security in Amazon EC2?

- Create individual IAM (Identity and Access Management) users to control access to your AWS recourses. Creating separate IAM user provides separate credentials for every user making it possible to assign different permissions to each user based on the access requirements.
- Secure the AWS Root account and its access keys.
- Harden EC2 instances by disabling unnecessary services and applications by installing only necessary software and tools on EC2 instances.
- Grant least privileges by opening up permissions that are required to perform a specific task and not more than that. Additional permissions can be granted as required.
- Define and review the security group rules on a regular basis.
- Have a well-defined strong password policy for all the users.
- Deploy anti-virus software on the AWS network to protect it from Trojans, Viruses, etc.

19)What should be the instance's tenancy attribute for running it on a single tenant hardware?

The instance tenancy attribute must be set to a dedicated instance and other values might not be appropriate for this operation.

20)There is a distributed application that processes huge amounts of data across various EC2 instances. Application is designed in such a way that it can recover gracefully from EC2 instance failures. How will you accomplish this in a cost effective manner?

On-demand or reserved instance will not be ideal in this case as the task here is not continuous. Moreover. It does not make sense to launch an on-demand instance whenever work comes up because on-demand instances are expensive.In this case, the ideal choice would be to opt for a spot instance owing to its cost effectiveness and no long term commitments.

21)**What are the important features of a classic load balancer in EC2?**

- The high availability feature ensures that the traffic is distributed among EC2 instances in single or multiple availability zones.This ensures high scale of availability for incoming traffic.
- Classic load balancer can decide whether to route the traffic or not based on the results of health check.
- You can implement secure load balancing within a network by creating security groups in a VPC.
- Classic load balancer supports sticky sessions which ensure that the traffic from a user is always routed to the same instance for a seamless experience.

22)What parameters will you take into consideration when choosing the availability zone?

Performance, pricing, latency, and response time are some of the factors to consider when selecting the availability zone.

23)Which instance will you use for deploying a 4-node Hadoop cluster in AWS?

We can use a c4.8x large instance or i2.large for this, but using a c4.8x will require a better configuration on PC.

24)Will you use encryption for S3?

It is better to consider encryption for sensitive data on S3 as it is a proprietary technology.

25)How can you send request to Amazon S3?

Using the REST API or the AWS SDK wrapper libraries which wrap the underlying Amazon S3 REST API.

26)How will you bind the user session with a specific instance in ELB (Elastic Load Balancer)?

This can be achieved by enabling Sticky Session.

27)**What are the possible connection issues you encounter when connecting to an EC2 instance?**

- Unprotected private key file
- Server refused key
- Connection timed out
- No supported authentication method available
- Host key not found,permission denied.
- User key not recognized by the server, permission denied.

28)What is the difference between Amazon S3 and EBS?

	Amazon S3	EBS
Paradigm	Object Store	Filesystem
Security	Private Key or Public Key	Visible only to your EC2
Redundancy	Across data centers	Within the data center
Performance	Fast	Superfast

29)**Can you run multiple websites on an EC2 server using a single IP address?**

More than one elastic IP is required to run multiple websites on EC2.

30)What happens when you reboot an EC2 instance?

Rebooting an instance is just similar to rebooting a PC. You do not return to image's original state, however, the contents of the hard disk are same as before the reboot.

31)A content management system running on EC2 instance is approaching 100% CPU utilization. How will you reduce the load on EC2 instance?

This can be done by attaching a load balancer to an autoscaling group to efficiently distribute load among all instances.

32)What happens when you launch instances in Amazon VPC?

Each instance has a default IP address when the instance is launched in Amazon VPC. This approach is considered ideal when you need to connect cloud resources with the data centers.

33)Can you modify the private IP address of an EC2 instance while it is running in a VPC?

It is not possible to change the primary private IP addresses. However, secondary IP addresses can be assigned, unassigned or moved between instances at any given point.

34)You are launching an instance under the free usage tier from AMI having a snapshot size of 50GB. How will you launch the instance under the free usage tier?

It is not possible to launch this instance under the free usage tier.

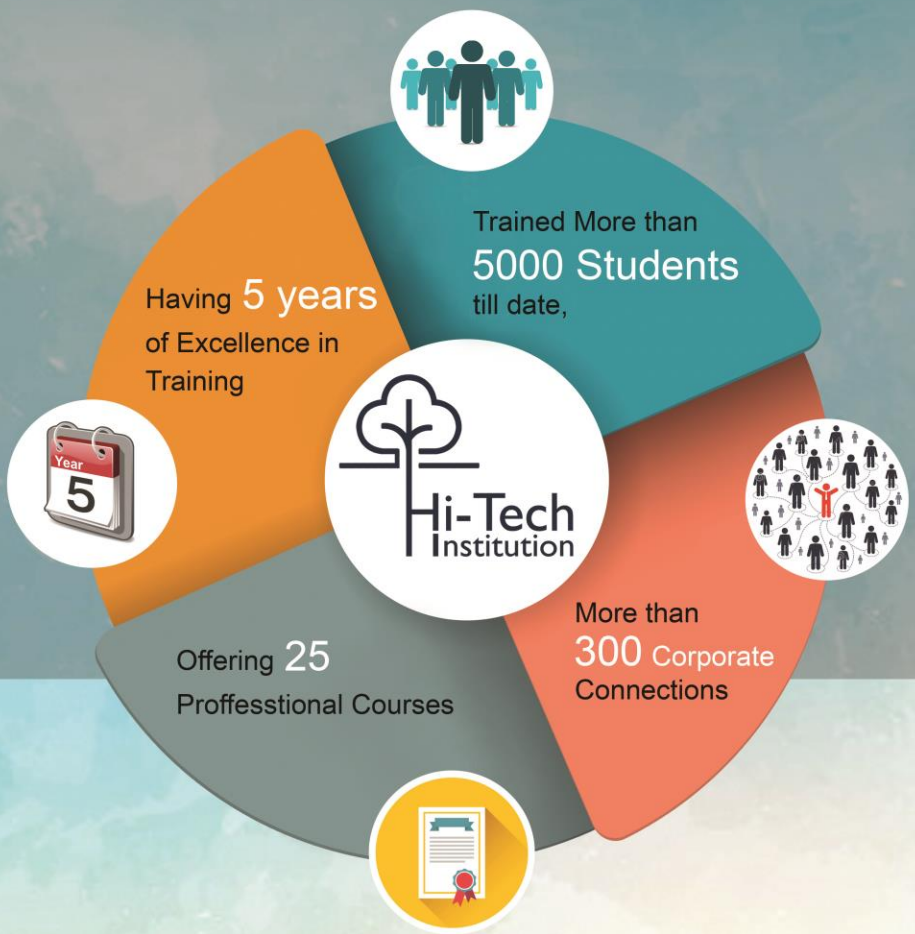
35)Which load balancer will you use to make routing decisions at the application layer or transport layer that supports either VPC or EC2?

Classic Load Balancer

Part-3

Scenario-Based AWS Architect Interview Questions

1. You have a webserver on EC2 instance . Your instance can get to the web but nobody on the internet can get to your webserver. How will you troubleshoot this issue ?
2. What steps will you perform to enable a server in private subnet of a VPC to download updates from the web?
3. How will you build a self-healing AWS architecture ?
4. How will you design an AWS architecture for failure ?
5. As a AWS solution architect, how will you implement disaster recovery on AWS ?
6. You run a news website in eu-west-1 region which updates every 15 minutes. The website is accessed by audience across the globe and uses an auto scaling group begind an Elastic load balancer and Amazon relation database service. Static content for the application is on S3 and is distributed using CloudFront. The auto scaling group is set to trigger a scale up event with 60% CPU utilization. You use extra large DB instance with 10.000 Provisioned IOPS that gives CPU Utilization around 80% with freeable memory in the 2GB range. The web analytics report shows that the load time for the webpages is an average of 2 seconds but the SEO consultant suggests that you bring the average load time of your pages to less than 0.5 seconds. What will you do improve the page load time of the website for your users.
7. How will you right size a system for a normal and peak traffic situations ?
8. Tell us about a situation where you were given feedback that made you change your architectural design strategy.
9. What challenges are you looking forward to for the position as an AWS solutions architect ?
10. Describe a successful AWS project which reflects your design and implementation experience about AWS Solutions Architecture.
11. How will you design an e-commerce application using AWS services ?
12. What characteristics will you take into consideration when desgining an Amazon Cloud solution?
13. When would you prefer to use provisioned IOPS over Standard RDS storage ?
14. What do you think AWS is missing from a solutions architect perspective?
15. What if Google decides to host YouTube.com on AWS, how will you design the solution architecture ?



TOP RECRUITERS

Capgemini · Mindtree · Tech Mahindra · MISYS · EMC² · subex · FIS · L&T Technology Services · virtusa · TRIGENT · HUAWEI · KENNAMETAL · HCL · Atos · ALLEGIS GROUP · izmo · AWPL · Softtek · Infosys · BOSCH · hp · infinite · CGI · OPENTEXT · IGATE · mellow infosystems · GLOBAL EDGE · ARTECH · Fonezela virtual business assistant · CORPORATE LADDER · Simbus · BENISON TECHNOLOGIES · BRISTLECONE Your Supply Chain. Optimized. · THOUGHTFOCUS · and more...

15

Hi-Tech Institution

50% offer for School or College students

30% offer for IT Employees

Above offer applicable only technical courses. Terms and conditions apply

Email Us
operations@hitechins.in

Search Us
www.hitechins.in

CONTACT US

7092 90 91 92 / 82 20 21 7640

PONDICHERRY
No.32, 100 feet road,
Ellaipillaichavady,
Pondicherry – 605 005,
Nearby Rajiv Gandhi Hospital

TAMBARAM
No.24, Chithi Vinayagar Kovil street,
KamarajNagar, Tambaram Sanatorium,
Chennai – 600 047,
Nearby Sanatorium Railway Station

VELACHERRY
No: 21, Officer Colony,
100 feet road, VijayaNagar,
Velacherry – 600 042,
Nearby Sathya Home Appliances

Locations

Chennai & Pondicherry


Hi-Tech
Institution