AWS Interview Questions and Answers

- **What Is Cloud Computing?**
- It is the use of remote servers on the internet to store, manage and process data rather than a local server or personal computer.
- There are basically 3 categories in cloud computing:
- **IaaS(Infrastructure as a service)**
- IaaS gives you a **server** in the cloud(virtual machine) that you have complete control over.
- In Iaas, you are responsible for managing everything from the Operating System on up to the application you are running.
- **PaaS(Platform as a Service)**
- With PaaS, you have a combination of flexibility and simplicity.
- Flexible because it can be tailored to the application's needs.
- Simple as no need for OS maintenance, versions, patches.
- **SaaS(Software as a Service)**
- A software distribution model in which a third-party provider hosts applications.
- Instead of installing and maintaining software, you simply access it via the Internet.
- Automatic updates reduce the burden on in-house IT staff.
- When we refer to AWS, it is more of an **IAAS.**

- Classify Cloud Platforms anategory ?

- Cloud Computing software can be classified as Software as a Service or SaaS, Infrastructure as a Service or IaaS and Platform as a Service or PaaS.

- SaaS is peace of software that runs over network on remote server and has only user interface exposed to users, usually in web browser. For example salesforce.com.

- Infrastructure as a service is a cloud environment that exposes VM to user to use as entire OS or container where you could install anything you would install on your server. Example for this would be OpenStack, AWS, Eucalyptus. PaaS allows users to deploy their own application on the preinstalled platform, usually framework of application server and suite of developer tools. Examples for this would be OpenShHeroku.

- **What is AWS (Amazon Web Services)? Did got chance to work on Amazon tools ?**

- AWS provides a set of flexible services designed to enable companies to create and deliver products with greater speed and reliability using AWS and DevOps practices . These services simplify commissioning and infrastructure management , application code deployment , automated software release process and monitoring of the application and infrastructure performance. Amazon used tools like AWS CodeCommit, AWS CodeDeploy, AWS CodePipeline etc, that helps to make devops easier.

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

- **What are easiest ways to build a small cloud ?**

- VMfest is one of the options for making IaaS cloud from VirtualBox VMs in no time. If you want a lightweight PaaS there is Dokku which is basically a bash script that makes PaaS out of Dokku containers.

- **What are the main SQL migration difficulties NoSQL ?**
- Each record in a relational database according to a schema - with a fixed number of fields (columns) each having a specified object and a data type. Each record is the same. The data is denormalized in several tables. The advantage is that there is less of duplicate data in the database. The downside is that a change in the pattern means performing several "alter table" that require expensive to lock multiple tables simultaneously to ensure that change does not leave the database in an inconsistent state.
- With databases data, on the other hand, each document can have a completely different structure from other documents. No additional management is required on the database to manage changes in the schemes.

- **What are the benefits of NoSQL databases Documents ?**
- The main advantages of document databases are the following :
- flexible data model data can be inserted without a defined schema and format of the data that is inserted can change at any time , providing extreme flexibility , which ultimately allows a significant agility to business
- Consistent , high-performance Advanced NoSQL database technologies are putting cache data , transparently, in system memory ; a behavior that is completely transparent to the developer and the team in charge of operations .
- Some easy scalability NoSQL databases automatically propagate data between servers , requiring no participation applications. Servers can be added and removed without disruption to applications , with data and I/O spread across multiple servers.

Services

- *AWS DevOps*
- AWS is one of the best cloud service provider and DevOps on the other hand is the *'need of the hour'* implementation of software development lifecycle. Following reason make AWS DevOps a highly popular amalgamation:
- **AWS CloudFormation**
- DevOps teams are required to create and release cloud instances and services more frequently than traditional development teams. AWS CloudFormation enables you to do just that.'Templates' of AWS resources like EC2 instances, ECS containers, and S3 storage buckets let you set up the entire stack without you having to bring everything together yourself.
- **AWS EC2**
- AWS EC2 speaks for itself. You can run containers inside EC2 instances. Hence you can leverage the AWS Security and management features. Another reason why AWS DevOps is a lethal combo.
- **AWS CloudWatch**
- This monitoring tool lets you track every resource that AWS has to offer. Plus it makes it very easy to use third party tools for monitoring like Sumo Logic etc
- **AWS CodePipeline**
- CodePipeline is one popular feature from AWS which highly simplifies the way you manage your CI/CD tool set. It lets you integrate with tools like GitHub, Jenkins, and CodeDeploy enabling you to visually control the flow of app updates from build to production.
- **Instances In AWS**
- AWS frequently creates and adds new instances to their list and the level of customization with these instances allow you make it easy to use AWS DevOps together.
- All these reasons make AWS on of the best platforms for DevOps. This pretty much brings us to the end of this AWS DevOps blog. Please let me know in the comments section below, whether you liked the blog or not. In case you wish to know more about AWS and DevOps Integration then this video would serve you purpose:

- **Mention what are the key components of AWS?**
- 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 very useful in case of unpredictable workloads
- **Elastic Block Store (EBS):** It provides persistent storage volumes that attach to EC2 to allow you to persist data past the lifespan of a single EC2
- **CloudWatch:** To monitor AWS resources, It allows administrators to view and collect key Also, one can set a notification alarm in case of trouble.

- **Explain how the implementation of "Infrastructure as code" is processed or executed in terms of AWS.**
  In AWS,
  The code will be in the simple JSON format.
  This JSON code is well organized into files called templates.
  This templates are deployed on AWS and then further managed as stacks
  Cloud Formation service will help in doing the Creating, deleting, updating, etc. operation in the stack.

- **Explain what is Memcached?**
- Memcached is a free and open source, high-performance, distributed memory object caching system. The primary objective of Memcached is to enhance the response time for data that can otherwise be recovered or constructed from some other source or database. It is used to avoid the need to operate SQL data base or another source repetitively to fetch data for concurrent request.
- Memcached can be used for
- - Social Networking **->** Profile Caching
  - Content Aggregation **->** HTML/ Page Caching
  - Ad targeting **->** Cookie/profile tracking
  - Relationship **->** Session caching
  - E-commerce **->** Session and HTML caching
  - Location-based services **->** Data-base query scaling
  - Gaming and entertainment **->** Session caching
- Memcache helps in
- - Speed up application processes
  - It determines what to store and what not to
  - Reduce the number of retrieval requests to the database
  - Cuts down the I/O (Input/Output) access (hard disk)
- Drawback of Memcached is
- - It is not a persistent data store
  - Not a database
  - It is not an application specific
  - It cannot cache large object

- **Mention some important features of Memcached?**
- Important features of Memcached includes
- • **CAS Tokens:** A CAS token is attached to any object retrieved from cache. You can use that token to save your updated object.
  - **Callbacks:** It simplifies the code
  - **getDelayed:** It reduces the delay time of your script which is waiting for results to come back from server
  - **Binary protocol:** You can use binary protocol instead of ASCII with the newer client
  - **Igbinary:** Previously, client always used to do serialization of the value with complex data, but with Memcached you can use igbinary option.

- **Explain whether it is possible to share a single instance of a Memcache between multiple projects?**
- Yes, it is possible to share a single instance of Memcache between multiple projects. Memcache is a memory store space, and you can run memcache on one or more servers. You can also configure your client to speak to a particular set of instances. So, you can run two different Memcache processes on the same host and yet they are completely independent. Unless, if you have partitioned your data, then it becomes necessary to know from which instance to get the data from or to put into.

- **You are having multiple Memcache servers, in which one of the memcacher server fails, and it has your data, will it ever try to get key data from that one failed server?**

- The data in the failed server won't get removed, but there is a provision for auto-failure, which you can configure for multiple nodes. Fail-over can be triggered during any kind of socket or Memcached server level errors and not during normal client errors like adding an existing key, etc.

- **Explain how you can minimize the Memcached server outages?**
- • When one instance fails, several of them goes down, this will put larger load on the database server when lost data is reloaded as client make a request. To avoid this, if your code has been written to minimize cache stampedes then it will leave a minimal impact
• Another way is to bring up an instance of Memcached on a new machine using the lost machines IP address
• Code is another option to minimize server outages as it gives you the liberty to change the Memcached server list with minimal work
• Setting timeout value is another option that some Memcached clients implement for Memcached server outage. When your Memcached server goes down, the client will keep trying to send a request till the time-out limit is reached

- **Explain how you can update Memcached when data changes?**

- When data changes you can update Memcached by

- • **Clearing the Cache proactively:** Clearing the cache when an insert or update is made

  • **Resetting the Cache:** It is similar to the first method but rather than just deleting the keys and waiting for the next request for the data to refresh the cache, reset the values after the insert or update.

- **Explain what is Dogpile effect? How can you prevent this effect?**
- Dogpile effect is referred to the event when cache expires, and websites are hit by the multiple requests made by the client at the same time. This effect can be prevented by using semaphore lock. In this system when value expires, first process acquires the lock and starts generating new value.

- **Explain how Memcached should not be used?**
- • Memcached common misuse is to use it as a data store, and not as a cache
  • Never use Memcached as the only source of the information you need to run your application. Data should always be available through another source as well
  • Memcached is just a key or value store and cannot perform query over the data or iterate over the contents to extract information
  • Memcached does not offer any form of security either in encryption or authentication

- **When server gets shut down does data stored in Memcached is still available?**

- Data stored in Memcached is not durable so if server is shut down or restarted then all the data stored in Memcached is deleted.

- **Mention what is the difference between Memcache and Memcached?**

- • **Memcache:** It is an extension that allows you to work through handy object-oriented (OOP's) and procedural interfaces. It is designed to reduce database load in dynamic web applications.

- • **Memcached**: It is an extension that uses **libmemcached** library to provide API for communicating with Memcached servers. It is used to increase the dynamic web applications by alleviating database load. It is the latest API.

- **What is the role of AWS in DevOps?**
- When asked this question in an interview, get straight to the point by explaining that AWS is a cloud-based service provided by Amazon that ensures scalability through unlimited computing power and storage. AWS empowers IT enterprises to develop and deliver sophisticated products and deploy applications on the cloud. Some of its key services include Amazon CloudFront, Amazon SimpleDB, Amazon Relational Database Service, and Amazon Elastic Computer Cloud. Discuss the various cloud platforms and emphasize any big data projects that you have handled in the past using cloud infrastructure.

- **How is IaC implemented using AWS?**
- Start by talking about the age-old mechanisms of writing commands onto script files and testing them in a separate environment before deployment and how this approach is being replaced by IaC. Similar to the codes written for other services, with the help of AWS, IaC allows developers to write, test, and maintain infrastructure entities in a descriptive manner, using formats such as JSON or YAML. This enables easier development and faster deployment of infrastructure changes.
- As a [DevOps engineer](), an in-depth knowledge of processes, tools, and relevant technology are essential. You must also have a holistic understanding of the products, services, and systems in place. If your answers matched the answers we've provided above, you're in great shape for future DevOps interviews. Good luck! If you're looking for answers to specific DevOps interview questions that aren't addressed here, ask them in the comments below. Our DevOps experts will help you craft the perfect answer.

- **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.
- An Elastic Load Balancer ensures that the incoming traffic is distributed optimally across various AWS instances. A buffer will synchronize different components and makes the arrangement additional elastic to a burst of load or traffic. The components are prone to work in an unstable way of receiving and processing the requests. The buffer creates the equilibrium linking various apparatus and crafts them effort at the identical rate to supply more rapid services.

. Compare AWS and OpenStack

Criteria	AWS	OpenStack
License	Amazon proprietary	Open Source
Operating System	Whatever cloud administrator provides	Whatever AMIs provided by AWS
Performing repeatable operations	Through templates	Through text files

- **What is the way to secure data for carrying in the cloud?**
- One thing must be ensured that no one should seize the information in the cloud while data is moving from point one to another and also there should not be any leakage with the security key from several storerooms in the cloud. Segregation of information from additional companies' information and then encrypting it by means of approved methods is one of the options.
- Amazon Web Services offers you a secure way of carrying data in the cloud.

- **Distinguish between scalability and flexibility**
- The aptitude of any scheme to enhance the tasks on hand on its present hardware resources to grip inconsistency in command is known as scalability. The capability of a scheme to augment the tasks on hand on its present and supplementary hardware property is recognized as flexibility, hence enabling the industry to convene command devoid of putting in the infrastructure at all. AWS has several configuration management solutions for AWS scalability, flexibility, availability and management.

- **Name the various layers of the cloud architecture**
- There are 5 layers and are listed below
- CC- Cluster Controller
- SC- Storage Controller
- CLC- Cloud Controller
- Walrus
- NC- Node Controller

- **Which automation gears can help with spinup services?**
- The API tools can be used for spinup services and also for the written scripts. Those scripts could be coded in Perl, bash or other languages of your preference. There is one more option that is patterned administration and stipulating tools such as a dummy or improved descendant. A tool called Scalr can also be used and finally we can go with a controlled explanation like a Rightscale.

AWS vs Azure

Amazon AWS vs Microsoft Azure

Area	AWS	Azure
Security	AWS Shield	DDos Protection Service
DB migration	DB Migration available as preview service	Azure also provides DB Migration
NoSQL	Dynamo Data Base	Azure Cosmos Data Base
Content delivery network	CloudFront	Azure Content Delivery NW
Container instances	EC2 Container Service (ECS)	Azure Container Service
Programmatic access	Command Line Interface	Azure Command Line Interface (CLI)
Batch computing	AWS Batch	Azure Batch

- **What Is Configuration Management? Why Would I Want To Use It With Cloud Provisioning Of Resources?**
- **Answer :**
- Configuration management has been around for a long time in web operations and systems administration. Yet the cultural popularity of it has been limited. Most systems administrators configure machines as software was developed before version control – that is manually making changes on servers. Each server can then and usually is slightly different. Troubleshooting though, is straightforward as you login to the box and operate on it directly. Configuration management brings a large automation tool in the picture, managing servers like strings of a puppet. This forces standardization, best practices, and reproducibility as all configs are versioned and managed. It also introduces a new way of working which is the biggest hurdle to its adoption.
- Enter the cloud, then configuration management becomes even more critical.That's because virtual servers such as amazons EC2 instances are much less reliable than physical ones.You absolutely need a mechanism to rebuild them as-is at any moment.This pushes best practices like automation, reproducibility and disaster recovery into center stage.

- **Explain How You Would Simulate Perimeter Security Using The Amazon Web Services Model?**

- **Answer :**

- Traditional perimeter security that we're already familiar with using firewalls and so forth is not supported in the Amazon EC2 world. AWS supports security groups.One can create a security group for a jump box with ssh access – only port 22 open.From there a webserver group and database group are created.The webserver group allows 80 and 443 from the world, but port 22 *only* from the jump box group.Further the database group allows port 3306 from the webserver group and port 22 from the jump box group.Add any machines to the webserver group and they can all hit the database. No one from the world can, and no one can directly ssh to any of your boxe.

- **What is AWS Certificate Manager ?**
- **Answer:** AWS Certificate Manager (ACM) manages the complexity of extending, provisioning, and regulating certificates granted over ACM (ACM Certificates) to your AWS-based websites and forms. You work ACM to petition and maintain the certificate and later practice other AWS services to provision the ACM Certificate for your website or purpose. As designated in the subsequent instance, ACM Certificates are currently ready for performance with only Elastic Load Balancing and Amazon CloudFront. You cannot handle ACM Certificates outside of AWS.

- **Explain what is ElastiCache ?**
- **Answer:** A web service that executes it comfortable to set up, maintain, and scale classified in-memory cache settings in the cloud is known as ElastiCache.

- **What is Amazon Kinesis Firehose ?**
- **Answer:** A fully managed service for delivering real-time streaming data to destinations such as Amazon Simple Storage Service (Amazon S3) and Amazon Redshift is known as Amazon Kinesis Firehose

- **What Is Amazon CloudSearch and its features ?**
- **Answer:**A thoroughly managed service in the cloud that creates it simple to set up, maintain, and estimate a search solution for your website or application is called Amazon CloudSearch.
- we can use Amazon CloudSearch to catalog and explore both plain text and structured data. Amazon CloudSearch characteristics:
- Entire text search with language-specific text processing
- Range searches
- Prefix searches
- Boolean search
- FacetingTerm boosting
- Highlighting
- Autocomplete Advices

- **Explain what is Regions and Endpoints in AWS ?**

- **Answer:** An endpoint is a URL that is the entry point for a web service. To decrease data latency in your forms, most Amazon Web Services results enable you to choose a sectional endpoint to make your applications.

- Some services, before-mentioned as Amazon EC2, let you define an endpoint that does not cover a particular area.IAM, do not sustain regions; their endpoints, consequently, do not incorporate a region proposed by Amazon Web Services

- **What is SimpleDB ?**

- **Answer:** A structured records or data repository that encourages indexing and data doubts to both EC2 and S3 is known as SimpleDB.

- **What is the type of architecture, where half of the workload is on the public load while at the same time half of it is on the local storage ?**
- **Answer:** Hybrid cloud architecture.

- **What is an Instance?**
- An instance is a virtual server for running applications on Amazon's EC2. It can also be understood like a tiny part of a larger computer, a tiny part which has its own Hard drive, network connection, OS etc. But it is actually all virtual. You can have multiple "tiny" computers on a single physical machine, and all these tiny machines are called Instances.

- **What Is Amazon Ec2 Service?**
- **Answer :** Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable (scalable) computing capacity in the cloud. You can use Amazon EC2 to launch as many virtual servers you need. In Amazon EC2 you can configure security and networking as well as manage storage. Amazon EC2 service also helps in obtaining and configuring capacity using minimal friction.

- **Why AWS EC2 ?**
- Why not buy your own stack of servers and work independently? Because, suppose you are a developer, and since you want to work independently you buy some servers, you estimated the correct capacity, and the computing power is enough. Now, you have to look after the updation of security patches every day, you have to troubleshoot any problem which might occur at a back end level in the servers and so on. These are all extra chores that you will be doing or maybe you will hire someone else to do these things for you.
- But if you buy an EC2 instance, you don't have to worry about any of these things as it will all be managed by Amazon; you just have to focus on your application. That too, at a fraction of a cost that you were incurring earlier! Isn't that interesting?

- **What are the basic structures of the Amazon EC2 service?**
- Answer: As the Amazon EC2 service is a cloud facility so it has entirely all the cloud features. Amazon EC2 delivers the subsequent features:
- Virtual computing atmosphere (popular as instances)
- Pre-configured patterns for your illustrations (popular as Amazon Machine Images – AMIs)
- Amazon Machine Images known as AMIs is a comprehensive set that you require for your server (counting the operating system and extra software)
- Amazon EC2 delivers numerous arrangements of Storage, CPU, memory, and networking measurements for your occurrences (popular as instance type)
- Locked login data for your cases by means of key pair (AWS supplies the public vital and you can supply the inaccessible key in a safe place)
- Storage capacities of provisional data is erased when you stop or dismiss your occurrence (popular as occurrence store volumes)
- Amazon EC2 delivers tenacious storage volumes (by means of Amazon Elastic Block Store – EBS)
- A firewall that permits you to stipulate the procedures, docks, and source IP ranges that can spread your occurrences using security groups
- Stationary IP addresses for lively cloud computing (popular as Elastic IP address)
- Amazon EC2 delivers metadata (popular as tags)
- Amazon EC2 offers virtual systems that are reasonably secluded from the rest of the AWS cloud, and that you can optionally attach to your own system (recognized as virtual private clouds – VPCs)

- **What Are The Features Of The Amazon Ec2 Service?**
- **Answer :**
- **As the Amazon EC2 service is a cloud service so it has all the cloud features. Amazon EC2 provides the following features:**
- Virtual computing environment (known as instances)
- Pre-configured templates for your instances (known as Amazon Machine Images – AMIs)
- Amazon Machine Images (AMIs) is a complete package that you need for your server (including the operating system and additional software)
- Amazon EC2 provides various configurations of CPU, memory, storage and networking capacity for your instances (known as instance type)
- Secure login information for your instances using key pairs (AWS stores the public key and you can store the private key in a secure place)
- Storage volumes of temporary data is deleted when you stop or terminate your instance (known as instance store volumes)
- Amazon EC2 provides persistent storage volumes (using Amazon Elastic Block Store – EBS)
- A firewall that enables you to specify the protocols, ports, and source IP ranges that can reach your instances using security groups
- Static IP addresses for dynamic cloud computing (known as Elastic IP address)
- Amazon EC2 provides metadata (known as tags)
- Amazon EC2 provides virtual networks that are logically isolated from the rest of the AWS cloud, and that you can optionally connect to your own network (known as virtual private clouds – VPCs)

- **Explain what is C4 instances ?**
- **Answer:** C4 instances are absolute for compute-bound purposes that serve from powerful-performance processors.

- **Explain 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.

- **Explain in detail the function of Amazon Machine Image (AMI)?**

- Answer: An Amazon Machine Image AMI is a pattern that comprises a software conformation (for instance, an operative system, a request server, and applications). From an AMI, we present an example, which is a duplicate of the AMI successively as a virtual server in the cloud. We can even offer plentiful examples of an AMI.

- **Mention what is the relation between an instance and AMI?**

- 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 compute 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.

- Another Answer:AMI can be elaborated as Amazon Machine Image, basically, a template consisting software configuration part. For example an OS, applications, application server. If you start an instance, a duplicate of the AMI in a row as an unspoken attendant in the cloud.

- **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

- **What Is an AMI ? How Do I Build One?**
- **Answer :**
- AMI holds for Amazon Machine Image. It is efficiently a snap of the source filesystem. Products appliance servers have a bio that shows the master drive report of the initial slice on a disk. A disk form though can lie anyplace physically on a disc, so Linux can boot from an absolute position on the EBS warehouse interface.
- Create a unique AMI at beginning rotating up and instance from a granted AMI. Later uniting combinations and components as needed. Comprise wary of setting delicate data over an AMI (learn salesforce online). For instance, your way credentials should be joined to an instance later spinup. Among a database, mount an external volume that carries your MySQL data next spinup actually enough.

- **Mention what is the difference between Amazon S3 and EC2?**
  The difference between EC2 and Amazon S3 is that:

EC2	S3
It is a cloud web service used for hosting your application	It is a data storage system where any amount of data can be stored
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	It has a REST interface and uses secure HMAC-SHA1 authentication keys

- **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

- **Explain what is T2 instances?**

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

- **Mention what are the security best practices for Amazon EC2?**
- 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 your require
- Disable password-based login, for instance, launched from your AMI

- **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
- 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

- **How the processes start, stop and terminate works? How?**

- **Starting and stopping of an instance**: If an instance gets stopped or ended, the instance functions a usual power cut and then change over to a clogged position. You can establish the case afterward since all the EBS volumes of Amazon remain attached. If an instance is in stopping state, then you will not get charged for additional instance.

- **Finishing the instance**: If an instance gets terminated it tends to perform a typical blackout, so the EBS volumes which are attached will get removed except the volume's deleteOnTermination characteristic is set to zero. In such cases, the instance will get removed and cannot set it up afterward.

- **What are the best practices for Security in Amazon EC2?**
- There are several best practices to secure Amazon EC2. A few of them are given below:
- Use AWS Identity and Access Management (IAM) to control access to your AWS resources.
- Restrict access by only allowing trusted hosts or networks to access ports on your instance.
- Review the rules in your security groups regularly, and ensure that you apply the principle of least
- Privilege – only open up permissions that you require.
- Disable password-based logins for instances launched from your AMI. Passwords can be found or cracked, and are a security risk.
-

- **What does the following command do with respect to the Amazon EC2 security groups?**

- **ec2-create-group CreateSecurityGroup**

- Groups the user created security groups into a new group for easy access.

- Creates a new security group for use with your account.

- Creates a new group inside the security group.

- Creates a new rule inside the security group.

- **Answer B.**

- **Explanation:** A Security group is just like a firewall, it controls the traffic in and out of your instance. In AWS terms, the inbound and outbound traffic. The command mentioned is pretty straight forward, it says create security group, and does the same. Moving along, once your security group is created, you can add different rules in it. For example, you have an RDS instance, to access it, you have to add the public IP address of the machine from which you want access the instance in its security group.

- **You have a video trans-coding application. The videos are processed according to a queue. If the processing of a video is interrupted in one instance, it is resumed in another instance. Currently there is a huge back-log of videos which needs to be processed, for this you need to add more instances, but you need these instances only until your backlog is reduced. Which of these would be an efficient way to do it?**

- You should be using an **On Demand** instance for the same. Why? First of all, the workload has to be processed now, meaning it is urgent, secondly you don't need them once your backlog is cleared, therefore Reserved Instance is out of the picture, and since the work is urgent, you cannot stop the work on your instance just because the spot price spiked, therefore Spot Instances shall also not be used. Hence On-Demand instances shall be the right choice in this case.

- **You have a distributed application that periodically processes large volumes of data across multiple Amazon EC2 Instances. The application is designed to recover gracefully from Amazon EC2 instance failures. You are required to accomplish this task in the most cost effective way.**
- **Which of the following will meet your requirements?**
- Spot Instances
- Reserved instances
- Dedicated instances
- On-Demand instances
- **Answer: A**
- **Explanation:** Since the work we are addressing here is not continuous, a reserved instance shall be idle at times, same goes with On Demand instances. Also it does not make sense to launch an On Demand instance whenever work comes up, since it is expensive. Hence Spot Instances will be the right fit because of their low rates and no long term commitments.

- **How is stopping and terminating an instance different from each other?**
- Starting, stopping and terminating are the three states in an EC2 instance, let's discuss them in detail:
- **Stopping and Starting** an instance: When an instance is stopped, the instance performs a normal shutdown and then transitions to a stopped state. All of its Amazon EBS volumes remain attached, and you can start the instance again at a later time. You are not charged for additional instance hours while the instance is in a stopped state.
- **Terminating** an instance: When an instance is terminated, the instance performs a normal shutdown, then the attached Amazon EBS volumes are deleted unless the volume's *deleteOnTermination* attribute is set to false. The instance itself is also deleted, and you can't start the instance again at a later time.

- **If I want my instance to run on a single-tenant hardware, which value do I have to set the instance's tenancy attribute to?**

- Dedicated

- Isolated

- One

- Reserved

- **Answer A.**

- **Explanation:** The Instance tenancy attribute should be set to Dedicated Instance. The rest of the values are invalid.

- **When will you incur costs with an Elastic IP address (EIP)?**
- When an EIP is allocated.
- When it is allocated and associated with a running instance.
- When it is allocated and associated with a stopped instance.
- Costs are incurred regardless of whether the EIP is associated with a running instance.
- **Answer C.**
- **Explanation:** You are not charged, if only one Elastic IP address is attached with your running instance. But you do get charged in the following conditions:
- When you use more than one Elastic IPs with your instance.
- When your Elastic IP is attached to a stopped instance.
- When your Elastic IP is not attached to any instance.

- **How is a Spot instance different from an On-Demand instance or Reserved Instance?**
- First of all, let's understand that Spot Instance, On-Demand instance and Reserved Instances are all models for pricing. Moving along, spot instances provide the ability for customers to purchase compute capacity with no upfront commitment, at hourly rates usually lower than the On-Demand rate in each region. Spot instances are just like bidding, the bidding price is called Spot Price. The Spot Price fluctuates based on supply and demand for instances, but customers will never pay more than the maximum price they have specified. If the Spot Price moves higher than a customer's maximum price, the customer's EC2 instance will be shut down automatically. But the reverse is not true, if the Spot prices come down again, your EC2 instance will not be launched automatically, one has to do that manually. In Spot and On demand instance, there is no commitment for the duration from the user side, however in reserved instances one has to stick to the time period that he has chosen.

- **Are the Reserved Instances available for Multi-AZ Deployments?**

- Multi-AZ Deployments are only available for Cluster Compute instances types

- Available for all instance types

- Only available for M3 instance types

- D. Not Available for Reserved Instances

- **Answer B.**

- **Explanation:** Reserved Instances is a pricing model, which is available for all instance types in EC2.

- **How to use the processor state control feature available on the c4.8xlarge instance?**

- The processor state control consists of 2 states:

- The C state – Sleep state varying from c0 to c6. C6 being the deepest sleep state for a processor

- The P state – Performance state p0 being the highest and p15 being the lowest possible frequency.

- Now, why the C state and P state. Processors have cores, these cores need thermal headroom to boost their performance. Now since all the cores are on the processor the temperature should be kept at an optimal state so that all the cores can perform at the highest performance.

- Now how will these states help in that? If a core is put into sleep state it will reduce the overall temperature of the processor and hence other cores can perform better. Now the same can be synchronized with other cores, so that the processor can boost as many cores it can by timely putting other cores to sleep, and thus get an overall performance boost.

- Concluding, the C and P state can be customized in some EC2 instances like the c4.8xlarge instance and thus you can customize the processor according to your workload.

- **What kind of network performance parameters can you expect when you launch instances in cluster placement group?**

- The network performance depends on the instance type and network performance specification, if launched in a placement group you can expect up to

- 10 Gbps in a single-flow,

- 20 Gbps in multiflow i.e full duplex

- Network traffic outside the placement group will be limited to 5 Gbps(full duplex).

- **To deploy a 4 node cluster of Hadoop in AWS which instance type can be used?**
- First let's understand what actually happens in a Hadoop cluster, the Hadoop cluster follows a master slave concept. The master machine processes all the data, slave machines store the data and act as data nodes. Since all the storage happens at the slave, a higher capacity hard disk would be recommended and since master does all the processing, a higher RAM and a much better CPU is required. Therefore, you can select the configuration of your machine depending on your workload. For e.g. – In this case c4.8xlarge will be preferred for master machine whereas for slave machine we can select i2.large instance.If you don't want to deal with configuring your instance and installing hadoop cluster manually, you can straight away launch an Amazon EMR (Elastic Map Reduce) instance which automatically configures the servers for you. You dump your data to be processed in S3, EMR picks it from there, processes it, and dumps it back into S3.

- **Where do you think an AMI fits, when you are designing an architecture for a solution?**
- AMIs(Amazon Machine Images) are like templates of virtual machines and an instance is derived from an AMI. AWS offers pre-baked AMIs which you can choose while you are launching an instance, some AMIs are not free, therefore can be bought from the AWS Marketplace. You can also choose to create your own custom AMI which would help you save space on AWS. For example if you don't need a set of software on your installation, you can customize your AMI to do that. This makes it cost efficient, since you are removing the unwanted things.

- **How do you choose an Availability Zone?**
- Let's understand this through an example, consider there's a company which has user base in India as well as in the US.
- Let us see how we will choose the region for this use case :

Regions	• Mumbai/N Virginia
Instance Type (Reserved Instance)	• e.g. amazon ec2- m4.4xlarge 16(vCPU), 64 GB RAM
Pricing(1 Year)	• Mumbai - $691/monthly - $0.9 hourly • N Virginia - $480/monthly - $0.6 hourly
Latency	• From USA to India - Low • From India to USA - High

- So, with reference to the above figure the regions to choose between are, Mumbai and North Virginia. Now let us first compare the pricing, you have hourly prices, which can be converted to your per month figure. Here North Virginia emerges as a winner. But, pricing cannot be the only parameter to consider. Performance should also be kept in mind hence, let's look at latency as well. Latency basically is the time that a server takes to respond to your requests i.e the response time. North Virginia wins again!

- So concluding, North Virginia should be chosen for this use case.

- **Is one Elastic IP address enough for every instance that I have running?**
- Depends! Every instance comes with its own private and public address. The private address is associated exclusively with the instance and is returned to Amazon EC2 only when it is stopped or terminated. Similarly, the public address is associated exclusively with the instance until it is stopped or terminated. However, this can be replaced by the Elastic IP address, which stays with the instance as long as the user doesn't manually detach it. But what if you are hosting multiple websites on your EC2 server, in that case you may require more than one Elastic IP address.

- **You have an EC2 Security Group with several running EC2 instances. You changed the Security Group rules to allow inbound traffic on a new port and protocol, and then launched several new instances in the same Security Group. The new rules apply:**
- Immediately to all instances in the security group.
- Immediately to the new instances only.
- Immediately to the new instances, but old instances must be stopped and restarted before the new rules apply.
- To all instances, but it may take several minutes for old instances to see the changes.
- **Answer A.**
- **Explanation:** Any rule specified in an EC2 Security Group applies immediately to all the instances, irrespective of when they are launched before or after adding a rule.

Describe storage for Amazon EC2 occurrence.

- Answer: Amazon EC2 offers numerous data storage choices for your occurrences. Each choice has an exclusive mixture of presentation and sturdiness. These storages can be used self-sufficiently or in grouping to suit your necessities.

- **There are chiefly four types of storage offered by AWS.**

- **Amazon EBS:** Its sturdy, block-level storage capacities can involve in running Amazon EC2 occurrence. The Amazon EBS volume continues self-sufficiently from the running lifespan of an Amazon EC2 occurrence. After an EBS volume is involved to an example, you can use it like any other bodily hard drive. Amazon EBS encryption feature provisions encryption feature.

- **Amazon EC2 Instance Store:** Storage disk that is involved to the host computer is mentioned to as occurrence store. The instance storage offers provisional block-level storing for Amazon EC2 instances. The data on an illustration store volume perseveres only during the life of the related Amazon EC2 instance; if you halt or dismiss an instance, any data on occurrence store volumes is misplaced.

- **Amazon S3:** Amazon S3 delivers access to dependable and budget data storage organization. It is intended to make web-scale calculating simpler by permitting you to store and save any amount of data, at any period, from within Amazon EC2 or anyplace on the web.

- **Addition Storage:** Every time your presentation an occurrence from an AMI, a root storage device is twisted for that occurrence. The root storage device comprises all the information essential to boot the occurrence. You can stipulate storage volumes in calculation to the root device volume when you generate an AMI or present an instance using hunk device mapping.

- **What are the various AMI design options ?**
- **Answer:**Fully Baked AMI, JeOS (just enough operating system) AMI, and Hybrid AMI.

- **If you want to launch Amazon Elastic Compute Cloud (EC2) instances and assign each instance a predetermined private IP address you should:**
- Launch the instance from a private Amazon Machine Image (AMI).
- Assign a group of sequential Elastic IP address to the instances.
- Launch the instances in the Amazon Virtual Private Cloud (VPC).
- Launch the instances in a Placement Group.
- **Answer C.**
- **Explanation:** The best way of connecting to your cloud resources (for ex- ec2 instances) from your own data center (for eg- private cloud) is a VPC. Once you connect your datacenter to the VPC in which your instances are present, each instance is assigned a private IP address which can be accessed from your datacenter. Hence, you can access your public cloud resources, as if they were on your own network.

- **Can I connect my corporate datacenter to the Amazon Cloud?**

- Yes, you can do this by establishing a VPN(Virtual Private Network) connection between your company's network and your VPC (Virtual Private Cloud), this will allow you to interact with your EC2 instances as if they were within your existing network.

- **Is it possible to change the private IP addresses of an EC2 while it is running/stopped in a VPC?**
- Primary private IP address is attached with the instance throughout its lifetime and cannot be changed, however secondary private addresses can be unassigned, assigned or moved between interfaces or instances at any point.

- **Why do you make subnets?**
- Because there is a shortage of networks
- To efficiently utilize networks that have a large no. of hosts.
- Because there is a shortage of hosts.
- To efficiently utilize networks that have a small no. of hosts.
- **Answer B.**
- **Explanation:** If there is a network which has a large no. of hosts, managing all these hosts can be a tedious job. Therefore we divide this network into subnets (sub-networks) so that managing these hosts becomes simpler.
-

- **Which of the following is true?**
- You can attach multiple route tables to a subnet
- You can attach multiple subnets to a route table
- Both A and B
- None of these.
- **Answer B.**
- **Explanation:** Route Tables are used to route network packets, therefore in a subnet having multiple route tables will lead to confusion as to where the packet has to go. Therefore, there is only one route table in a subnet, and since a route table can have any no. of records or information, hence attaching multiple subnets to a route table is possible.

- **What do you mean by classic link?**
- The Amazon virtual private cloud classic link will permit EC2 instances in the EC2 classic platform. This occurs so that it can communicate with the instances that are present in the virtual private cloud. The communication occurs with the help of private IP addresses. In order to use a classic link it is important that you enable it to for virtual private cloud in your account. Then you will need to associate a security group with an instance in the EC2 classic. This security group is from the VPC for which you enabled the classic link in your account. Each and every rule that is there for the VPC security group is applicable for the communications between the instances in EC2 classic and those instances in the VPC.

- **What is the process to use classic link?**
- For the purpose of using classic link, you will need to enable minimum one virtual private cloud on your account for classic link. After doing this, you can associate a security group from that VPC to the EC2 classic instance that you would prefer. This will make sure that your EC2 classic instance is linked to VPC. It will become a member of the chosen security group in the VPC. It should be remembered that you cannot connect your EC2 classic instance to more than one virtual private cloud at the same time.

- **Is it possible for an EC2 classic instance to become a member of a virtual private cloud?**
- No, it is not possible for an EC2 classic instance to be a member of a VPC though it can become a member of the security group of virtual private cloud. The security group should be associated with the EC2 classic instance.

- **Is it possible for classic link settings on EC2 classic interface to persist through start or stop cycles?**

- It is not possible for a classic link connection to persist through the start or stop cycles of the EC2 classic interface. After the EC2 classic interface is stopped it will need to be linked back to a virtual private cloud. But the classic link will persist through the instance reboot cycles.

- **Is it possible to have more than two network interfaces to be attached to EC2 instance?**

- The number of network interfaces that are to be attached with an EC2 instance will depend on the type of the instance.

- **Can a network interface in one availability zone be attached with an instance in another availability zone?**
- The instances that are present in the same availability zone can be attached with network interfaces.

- **Can a network interface in one VPC be attached to an instance that is present in another VPC?**
- It is possible for the network interfaces to be attached to instances that are in the same virtual private cloud as that of the interface.

- **Is it possible to use elastic network interfaces in a way so that it can host multiple websites which are required to separate IP addresses on a single instance?**

- Yes it is a possible scenario but not the best suited use case in case of multiple interfaces. Apart from doing this it is much more logical to assign an additional private IP address to the instance and to associate the EIPs to the private IPs as per requirement.

- **Can a primary interface be detached on EC2 instance?**

- It is possible. You can only attach and detach secondary interfaces on an instance of EC2 but you would not be able to detach eth0 interface.

- **In order to access VPCs that you are peered with, can you make use of AWS direct connect or hardware VPN connections?**

- This is not a possible concept. Amazon VPC does not support edge to edge routing.

- **Is it possible to peer two VPCs with matching IP address ranges?**
- No, it is not possible to peer two VPCs with matching IP address ranges since peered VPCs should posses IP ranges that are non-overlapping.

- **In order to use peering connections, is it necessary to have an Internet gateway?**
- No, you do not need an Internet gateway in order to virtual private cloud peering connections.

- **The VPC peering traffic that is present with the region, is it encrypted?**

- No, the VPC peering traffic within the region is not encrypted. The traffic between instances that is present in peered VPCs does remain isolated and private. This is similar to the fact the traffic between two instances in the same VPC are also isolated and private.

- **In case of peering connections, is there any limitation on bandwidth?**

- There is no difference in bandwidth between instances in peered VPCs and also between instances in the VPC. Peered VPCs can be spanned by a placement group. But you will not be provided with full bisects on bandwidth that is present between instances in peered VPCs.

- **Is it possible to modify the route tables of virtual private cloud? If possible then how?**

- Yes, it is possible go modify the route table of VPC. In order to specify which subnets are to be routed to VPC, Internet gateway or any other instances you are allowed to create route rules.

- **Is it possible to specify the subnet that will be used by a gateway as its default?**

- Yes, it possible to specify which subnet will be used by which gateway as its default. You are entitled to make a default route for each and every subnet. Via the VPC, Internet gateway or the NAT gateway, the default route will be able to direct traffic to egress the virtual private cloud.

- **In order to control and mane Amazon VPC, is it possible to make use of AWS management console?**

- It is possible to use AWS management console to manage and control Amazon VPC objects that include subnets, virtual private cloud, IPsec VPN connections, and Internet gateways. Also you can make use of a simple wizard in order to create a virtual private cloud.

- **What are the VPCs, elastic IP addresses, subnets, Internet gateways, virtual private gateways, customer gateways and VPN connections can be created?**
- There are:-
- 1. There are five Amazon VPCs per AWS account per region.
  2. For per Amazon VPC there are two hundred subnets
  3. For per AWS account per region there are five Amazon VPC elastic IP addresses.
  4. For per AWS per region there are five virtual private gateways.
  5. For each VPC there is one Internet gateway.
  6. There are fifty customer gateways for every AWS account per region.
  7. For every virtual private gateway, there are ten IPsec VPN connections.

- **Is there a service level Agreement (SLA) for the Amazon VPC VPN connection?**
- No there is no service level agreement for Amazon VPC VPN connection.

- **Mention the work of an Amazon VPC router.**
- Enabling of Amazon EC2 instances that is within the subnet so that it can communicate with Amazon EC2 instances on other subnets that are in the same VPC is done by an Amazon VPC router. It also helps in enabling Internet gateways, subnets, and virtual private gateways so that it can communicate with each other. You will not get between usage data from the router. But you are entitled to obtain network usage statistics from the instances which are using Amazon cloud watch.

- **Is the property of multicast or broadcast supported by Amazon VPC?**

- No, Amazon VPC do not support multicast or broadcast.

- **Mention the process in which a VPC access the Internet.**

- In order to give instances in the VPC the power to both direct communicate outbound to the Internet and also to get the unsolicited inbound traffic from the Internet, you can make use of public IP addresses which include elastic IP addresses.

- **Mention the process in which instances without public IP addresses access the Internet.**
- There are two ways in which instances without public addresses can make use of the Internet.
- Those instances that are without public IP addresses can route their traffic through a NAT instance or a NAT gateway so that it can access the Internet. In order to traverse the Internet, these instances make use of public IP address of the NAT gateway or the NAT instance. Outbound communication is allowed by the NAT instance or NAT gateway but it do not permit machines on the Internet to start a connection with the addressed instances privately.
- For those VPCs that are provided by a hardware VPN connection or direct connect connection, the instances can route the Internet traffic through the virtual private gateway to the existing data centre. It can then access the Internet through the existing egress points and also new tweak security or monitoring devices.

- **Mention the process in which a hardware VPN connection turns work with Amazon VPC.**
- The virtual private cloud is connected to the data centre with the help of a hardware VPN connection. Internet protocol security VPN connections are supported by Amazon. In order to intern the integrity and confidentiality of a data which is in transit, this data is transferred between the VPN and the data centres are routed over an encrypted VPN connection. To establish a hardware VPN connection you do not need an Internet gateway.

- **How can one connect a VPC to corporate data centre?**
- In order to establish a hardware VPN connection among an existing network and Amazon, VPC will permit you to interact with Amazon EC2 instances that are present within a VPC as if they were already present within the existing network. Network address translation is not performed by AWS on Amazon EC2 instances that are present within a VPN connection that is VPC accessed through hardware.

- **Name the customer gateway devices that are used to connect to Amazon VPC**
- Statically routed VPN connections and dynamically routed VPN connections are the two types of VPN connections. The customer gateway devices that supports statically routed VPN connections must be able to do:-
- 1. Using pre-shared keys, establish IKE security association.
  2. In tunnel mode, establish IPsec security associations.
  3. Utilization of AES 128 bit or 256 bit encryption function
  4. Prior to encryption, perform packet fragmentation.
  5. Utilization of SHA 1 or SHA 2 having function
- The custom gateway devices that supports dynamically routed VPN connections must be able to:-
- 1. Establishing border gateway protocol peering
  2. Utilization of IPsec dead peer detection
  3. Binding of tunnels to logical interfaces which have VPN route based

- **Mention the VPCs for which the classic link cannot be enabled.**
- A VPC which has a classless inter domain routing is one type of VPCs for which you cannot enable classic link. Another one is the VPC which has a route table entry that points to 10.0.0.0/8 CIDR space.

- **Is it possible for traffic from an EC2 classic instance to travel through the Amazon VPC and then egress through the internet gateway, virtual private gateway or to peer VPCs?**

- It is only possible to route the traffic from an EC2 classic instance to the private IP addresses that is within the VPC. They cannot be routed to any other destination which is outside the VPC.

- **Is the access control between the EC2 classic instance and other instances which are present in the EC2 classic platform be affected by classic link?**

- The access control that is defined for an EC2 classic instance through its existing security groups from the EC2 classic platform cannot be changed with classic link.

- **Name the tools that are available to help troubleshoot the hardware VPN configuration.**

- The status of the VPN connection is displayed by the Describe VPN connection API. It also includes the Up or down state of each and every VPN tunnel and it shows corresponding error messages if either one of the tunnel is down.

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- **Explain Elastic Block Storage? What Type Of Performance Can You Expect? How Do You Back It Up? How Do You Improve Performance?**
- **Answer :**
- EBS is a virtualized SAN or storage area network. That means it is RAID storage to start with, so it's redundant and fault tolerant. If disks die in that RAID you don't lose data. Great! It is also virtualized, so you can provision and allocate storage, and attach it to your server with various API calls. No calling the storage expert and asking him or her to run specialized commands from the hardware vendor.
- Performance on EBS can exhibit variability. That is, it can go above the SLA performance level, then drop below it. The SLA provides you with an average disk I/O rate you can expect. This can frustrate some folks, especially performance experts who expect reliable and consistent disk throughout on a server. Traditional physically hosted servers behave that way. Virtual AWS instances do not.
- Backup EBS volumes by using the snapshot facility via API call or via a GUI interface like elasticfox.
- Improve performance by using Linux software raid and striping across four volumes.

- **Suppose you have an application where you have to render images and also do some general computing. From the following services which service will best fit your need?**
- Classic Load Balancer
- Application Load Balancer
- Both of them
- None of these
- **Answer B.**
- **Explanation:** You will choose an application load balancer, since it supports path based routing, which means it can take decisions based on the URL, therefore if your task needs image rendering it will route it to a different instance, and for general computing it will route it to a different instance.

- **You have a content management system running on an Amazon EC2 instance that is approaching 100% CPU utilization. Which option will reduce load on the Amazon EC2 instance?**
- Create a load balancer, and register the Amazon EC2 instance with it
- Create a CloudFront distribution, and configure the Amazon EC2 instance as the origin
- Create an Auto Scaling group from the instance using the CreateAutoScalingGroup action
- Create a launch configuration from the instance using the CreateLaunchConfigurationAction
- **Answer A.**
- **Explanation:**Creating alone an autoscaling group will not solve the issue, until you attach a load balancer to it. Once you attach a load balancer to an autoscaling group, it will efficiently distribute the load among all the instances. Option B – CloudFront is a CDN, it is a data transfer tool therefore will not help reduce load on the EC2 instance. Similarly the other option – Launch configuration is a template for configuration which has no connection with reducing loads.

- **When should I use a Classic Load Balancer and when should I use an Application load balancer?**

- A Classic Load Balancer is ideal for simple load balancing of traffic across multiple EC2 instances, while an Application Load Balancer is ideal for microservices or container-based architectures where there is a need to route traffic to multiple services or load balance across multiple ports on the same EC2 instance.

- **What does Connection draining do?**
- Terminates instances which are not in use.
- **Re-routes traffic from instances which are to be updated or failed a health check.**
- Re-routes traffic from instances which have more workload to instances which have less workload.
- Drains all the connections from an instance, with one click.
- **Answer B.**
- **Explanation:** Connection draining is a service under ELB which constantly monitors the health of the instances. If any instance fails a health check or if any instance has to be patched with a software update, it pulls all the traffic from that instance and re routes them to other instances.

- **When an instance is unhealthy, it is terminated and replaced with a new one, which of the following services does that?**
- Sticky Sessions
- Fault Tolerance
- Connection Draining
- Monitoring
- **Answer B.**
- **Explanation:** When ELB detects that an instance is unhealthy, it starts routing incoming traffic to other healthy instances in the region. If all the instances in a region becomes unhealthy, and if you have instances in some other availability zone/region, your traffic is directed to them. Once your instances become healthy again, they are re routed back to the original instances.

- **Explain what is S3?**

- 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".

- **Describe what is S3?**
- Answer: S3 is known for Simple Storage Service. You can custom S3 interface to supply and recover any quantity of data, at any time and from anyplace on the web. For S3, the expense model is "pay as you go".

- **What Is S3? What Is It Used For? Should Encryption Be Used?**

- **Answer :**

- S3 stands for Simple Storage Service. You can think of it like FTP storage, where you can move files to and from there, but not mount it like a filesystem. AWS automatically puts your snapshots there, as well as AMIs there. Encryption should be considered for sensitive data, as S3 is a proprietary technology developed by Amazon themselves, and as yet unproven vis-a-vis a security standpoint.

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

- **Mention what is the difference between Amazon S3 and EC2?**
The difference between EC2 and Amazon S3 is that:

EC2	S3
It is a cloud web service used for hosting your application	It is a data storage system where any amount of data can be stored
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	It has a REST interface and uses secure HMAC-SHA1 authentication keys

- **How many buckets can you create in AWS by default?**
- By default, you can create upto 100 buckets in each of your AWS accounts.

- **You need to configure an Amazon S3 bucket to serve static assets for your public-facing web application. Which method will ensure that all objects uploaded to the bucket are set to public read?**
- Set permissions on the object to public read during upload.
- Configure the bucket policy to set all objects to public read.
- Use AWS Identity and Access Management roles to set the bucket to public read.
- Amazon S3 objects default to public read, so no action is needed.
- **Answer B.**
- **Explanation:** Rather than making changes to every object, its better to set the policy for the whole bucket. IAM is used to give more granular permissions, since this is a website, all objects would be public by default.

- **A customer wants to leverage Amazon Simple Storage Service (S3) and Amazon Glacier as part of their backup and archive infrastructure. The customer plans to use third-party software to support this integration. Which approach will limit the access of the third party software to only the Amazon S3 bucket named "company-backup"?**
- A custom bucket policy limited to the Amazon S3 API in three Amazon Glacier archive "company-backup"
- A custom bucket policy limited to the Amazon S3 API in "company-backup"
- A custom IAM user policy limited to the Amazon S3 API for the Amazon Glacier archive "company-backup".
- A custom IAM user policy limited to the Amazon S3 API in "company-backup".
- **Answer D.**
- **Explanation:** Taking queue from the previous questions, this use case involves more granular permissions, hence IAM would be used here.

- **Can S3 be used with EC2 instances, if yes, how?**
- Yes, it can be used for instances with root devices backed by local instance storage. By using Amazon S3, developers have access to the same highly scalable, reliable, fast, inexpensive data storage infrastructure that Amazon uses to run its own global network of web sites. In order to execute systems in the Amazon EC2 environment, developers use the tools provided to load their Amazon Machine Images (AMIs) into Amazon S3 and to move them between Amazon S3 and Amazon EC2.
- Another use case could be for websites hosted on EC2 to load their static content from S3.

- **A customer implemented AWS Storage Gateway with a gateway-cached volume at their main office. An event takes the link between the main and branch office offline. Which methods will enable the branch office to access their data?**
- Restore by implementing a lifecycle policy on the Amazon S3 bucket.
- Make an Amazon Glacier Restore API call to load the files into another Amazon S3 bucket within four to six hours.
- Launch a new AWS Storage Gateway instance AMI in Amazon EC2, and restore from a gateway snapshot.
- Create an Amazon EBS volume from a gateway snapshot, and mount it to an Amazon EC2 instance.
- **Answer C.**
- **Explanation:** The fastest way to do it would be launching a new storage gateway instance. Why? Since time is the key factor which drives every business, troubleshooting this problem will take more time. Rather than we can just restore the previous working state of the storage gateway on a new instance.

- **When you need to move data over long distances using the internet, for instance across countries or continents to your Amazon S3 bucket, which method or service will you use?**
- Amazon Glacier
- Amazon CloudFront
- Amazon Transfer Acceleration
- Amazon Snowball
- **Answer C.**
- **Explanation:** You would not use Snowball, because for now, the snowball service does not support cross region data transfer, and since, we are transferring across countries, Snowball cannot be used. Transfer Acceleration shall be the right choice here as it throttles your data transfer with the use of optimized network paths and Amazon's content delivery network upto 300% compared to normal data transfer speed.

- **How can you speed up data transfer in Snowball?**
- The data transfer can be increased in the following way:
- By performing multiple copy operations at one time i.e. if the workstation is powerful enough, you can initiate multiple cp commands each from different terminals, on the same Snowball device.
- Copying from multiple workstations to the same snowball.
- Transferring large files or by creating a batch of small file, this will reduce the encryption overhead.
- Eliminating unnecessary hops i.e. make a setup where the source machine(s) and the snowball are the only machines active on the switch being used, this can hugely improve performance.

- **Can S3 be cast-off with EC2 instances, in case of "Yes" please specify How?**
- Answer: Yes, it can be cast-off for instances with root approaches backed by native occurrence storage. By using Amazon S3, developers have access to the similar extremely scalable, dependable, fast, low-priced data storage substructure that Amazon uses to track its own worldwide network of web sites. In order to perform systems in the Amazon EC2 atmosphere, developers use the tools providing to load their Amazon Machine Images (AMIs) into Amazon S3 and to transfer them between Amazon S3 and Amazon EC2. Additional use case might be for websites hosted on EC2 to load their stationary content from S3.

- **Should encryption be used for S3 ?**
- **Answer:** Encryption should be examined for delicate information or data as S3 is a proprietary technology.

- **Define auto-scaling.**
- Auto- scaling is one of the remarkable features of AWS where it permits you to arrange and robotically stipulation and spin up fresh examples without the requirement for your involvement. This can be achieved by setting brinks and metrics to watch. If those entrances are overcome, a fresh example of your selection will be configured, spun up and copied into the weight planner collection.

- **Is it possible to scale an Amazon instance vertically? How?**
- Yes. This is an incredible characteristic of cloud virtualization and AWS. Spinup is a huge case when compared to the one which you are running with. Let up the instance and separate the root EBS volume from this server and remove. Next, stop your live instance, remove its root volume. Note down the distinctive device ID and attach root volume to your new server and start it again. This is the way to scaling vertically in place.

- **What is the difference between Scalability and Elasticity?**
- Scalability is the ability of a system to increase its hardware resources to handle the increase in demand. It can be done by increasing the hardware specifications or increasing the processing nodes.
- Elasticity is the ability of a system to handle increase in the workload by adding additional hardware resources when the demand increases(same as scaling) but also rolling back the scaled resources, when the resources are no longer needed. This is particularly helpful in Cloud environments, where a pay per use model is followed.

- **How will you change the instance type for instances which are running in your application tier and are using Auto Scaling. Where will you change it from the following areas?**

- Auto Scaling policy configuration

- Auto Scaling group

- Auto Scaling tags configuration

- Auto Scaling launch configuration

- **Answer D.**

- **Explanation:** Auto scaling tags configuration, is used to attach metadata to your instances, to change the instance type you have to use auto scaling launch configuration.

- **What are lifecycle hooks used for in AutoScaling?**
- They are used to do health checks on instances
- They are used to put an additional wait time to a scale in or scale out event.
- They are used to shorten the wait time to a scale in or scale out event
- None of these
- **Answer B.**
- **Explanation:** Lifecycle hooks are used for putting wait time before any lifecycle action i.e launching or terminating an instance happens. The purpose of this wait time, can be anything from extracting log files before terminating an instance or installing the necessary softwares in an instance before launching it.

- **A user has setup an Auto Scaling group. Due to some issue the group has failed to launch a single instance for more than 24 hours. What will happen to Auto Scaling in this condition?**

- Auto Scaling will keep trying to launch the instance for 72 hours

- Auto Scaling will suspend the scaling process

- Auto Scaling will start an instance in a separate region

- The Auto Scaling group will be terminated automatically

- **Answer B.**

- **Explanation:** Auto Scaling allows you to suspend and then resume one or more of the Auto Scaling processes in your Auto Scaling group. This can be very useful when you want to investigate a configuration problem or other issue with your web application, and then make changes to your application, without triggering the Auto Scaling process.

- **What Is Auto-scaling? How Does It Work?**

- **Answer :**

- Autoscaling is a feature of AWS which allows you to configure and automatically provision and spin up new instances without the need for your intervention.

- You do this by setting thresholds and metrics to monitor. When those thresholds are crossed, a new instance of your choosing will be spun up, configured, and rolled into the load balancer pool. Voila, you've scaled horizontally without any operator intervention!

- **To create a mirror image of your environment in another region for disaster recovery, which of the following AWS resources do not need to be recreated in the second region? (Choose 2 answers)**
- Route 53 Record Sets
- Elastic IP Addresses (EIP)
- EC2 Key Pairs
- Launch configurations
- Security Groups
- **Answer A.**
- **Explanation:** Route 53 record sets are common assets therefore there is no need to replicate them, since Route 53 is valid across regions

- **How do I transfer my existing domain name registration to Amazon Route 53 without disrupting my existing web traffic?**
- You will need to get a list of the DNS record data for your domain name first, it is generally available in the form of a "zone file" that you can get from your existing DNS provider. Once you receive the DNS record data, you can use Route 53's Management Console or simple web-services interface to create a hosted zone that will store your DNS records for your domain name and follow its transfer process. It also includes steps such as updating the nameservers for your domain name to the ones associated with your hosted zone. For completing the process you have to contact the registrar with whom you registered your domain name and follow the transfer process. As soon as your registrar propagates the new name server delegations, your DNS queries will start to get answered.

- **If I launch a standby RDS instance, will it be in the same Availability Zone as my primary?**
- Only for Oracle RDS types
- Yes
- Only if it is configured at launch
- No
- **Answer D.**
- **Explanation:** No, since the purpose of having a standby instance is to avoid an infrastructure failure (if it happens), therefore the standby instance is stored in a different availability zone, which is a physically different independent infrastructure.

- **When would I prefer Provisioned IOPS over Standard RDS storage?**

- **If you have batch-oriented workloads**

- If you use production online transaction processing (OLTP) workloads.

- If you have workloads that are not sensitive to consistent performance

- All of the above

- **Answer A.**

- **Explanation:** Provisioned IOPS deliver high IO rates but on the other hand it is expensive as well. Batch processing workloads do not require manual intervention they enable full utilization of systems, therefore a provisioned IOPS will be preferred for batch oriented workload.

- **How is Amazon RDS, DynamoDB and Redshift different?**

- Amazon RDS is a database management service for relational databases, it manages patching, upgrading, backing up of data etc. of databases for you without your intervention. RDS is a Db management service for structured data only.

- DynamoDB, on the other hand, is a NoSQL database service, NoSQL deals with unstructured data.

- Redshift, is an entirely different service, it is a data warehouse product and is used in data analysis.

- **If I am running my DB Instance as a Multi-AZ deployment, can I use the standby DB Instance for read or write operations along with primary DB instance?**
- Yes
- Only with MySQL based RDS
- Only for Oracle RDS instances
- No
- **Answer D.**
- **Explanation:** No, Standby DB instance cannot be used with primary DB instance in parallel, as the former is solely used for standby purposes, it cannot be used unless the primary instance goes down.

- **Your company's branch offices are all over the world, they use a software with a multi-regional deployment on AWS, they use MySQL 5.6 for data persistence.**
- **The task is to run an hourly batch process and read data from every region to compute cross-regional reports which will be distributed to all the branches. This should be done in the shortest time possible. How will you build the DB architecture in order to meet the requirements?**
- For each regional deployment, use RDS MySQL with a master in the region and a read replica in the HQ region
- For each regional deployment, use MySQL on EC2 with a master in the region and send hourly EBS snapshots to the HQ region
- For each regional deployment, use RDS MySQL with a master in the region and send hourly RDS snapshots to the HQ region
- For each regional deployment, use MySQL on EC2 with a master in the region and use S3 to copy data files hourly to the HQ region
- **Answer A.**
- **Explanation:** For this we will take an RDS instance as a master, because it will manage our database for us and since we have to read from every region, we'll put a read replica of this instance in every region where the data has to be read from. Option C is not correct since putting a read replica would be more efficient than putting a snapshot, a read replica can be promoted if needed to an independent DB instance, but with a Db snapshot it becomes mandatory to launch a separate DB Instance.

- **Can I run more than one DB instance for Amazon RDS for free?**
- Yes. You can run more than one Single-AZ Micro database instance, that too for free! However, any use exceeding 750 instance hours, across all Amazon RDS Single-AZ Micro DB instances, across all eligible database engines and regions, will be billed at standard Amazon RDS prices. For example: if you run two Single-AZ Micro DB instances for 400 hours each in a single month, you will accumulate 800 instance hours of usage, of which 750 hours will be free. You will be billed for the remaining 50 hours at the standard Amazon RDS price.

- **You are running a website on EC2 instances deployed across multiple Availability Zones with a Multi-AZ RDS MySQL Extra Large DB Instance. The site performs a high number of small reads and writes per second and relies on an eventual consistency model. After comprehensive tests you discover that there is read contention on RDS MySQL. Which are the best approaches to meet these requirements? (Choose 2 answers)**
- Deploy ElastiCache in-memory cache running in each availability zone
- Implement sharding to distribute load to multiple RDS MySQL instances
- Increase the RDS MySQL Instance size and Implement provisioned IOPS
- Add an RDS MySQL read replica in each availability zone
- **Answer A,C.**
- **Explanation:** Since it does a lot of read writes, provisioned IO may become expensive. But we need high performance as well, therefore the data can be cached using ElastiCache which can be used for frequently reading the data. As for RDS since read contention is happening, the instance size should be increased and provisioned IO should be introduced to increase the performance.

- **Give one instance where you would prefer Provisioned IOPS over Standard RDS storage?**

-

- **Ans.** When you have batch-oriented workloads.

- **Which AWS services will you use to collect and process e-commerce data for near real-time analysis?**

- Amazon ElastiCache

- Amazon DynamoDB

- Amazon Redshift

- Amazon Elastic MapReduce

- **Answer B,C.**

- **Explanation:** DynamoDB is a fully managed NoSQL database service. DynamoDB, therefore can be fed any type of unstructured data, which can be data from e-commerce websites as well, and later, an analysis can be done on them using Amazon Redshift. We are not using Elastic MapReduce, since a near real time analyses is needed.

- **Can I retrieve only a specific element of the data, if I have a nested JSON data in DynamoDB?**

- Yes. When using the GetItem, BatchGetItem, Query or Scan APIs, you can define a Projection Expression to determine which attributes should be retrieved from the table. Those attributes can include scalars, sets, or elements of a JSON document.

- **A company is deploying a new two-tier web application in AWS. The company has limited staff and requires high availability, and the application requires complex queries and table joins. Which configuration provides the solution for the company's requirements?**
- MySQL Installed on two Amazon EC2 Instances in a single Availability Zone
- Amazon RDS for MySQL with Multi-AZ
- Amazon ElastiCache
- Amazon DynamoDB
- **Answer D.**
- **Explanation:** DynamoDB has the ability to scale more than RDS or any other relational database service, therefore DynamoDB would be the apt choice.

- **What happens to my backups and DB Snapshots if I delete my DB Instance?**
- When you delete a DB instance, you have an option of creating a final DB snapshot, if you do that you can restore your database from that snapshot. RDS retains this user-created DB snapshot along with all other manually created DB snapshots after the instance is deleted, also automated backups are deleted and only manually created DB Snapshots are retained.

- **Which of the following use cases are suitable for Amazon DynamoDB? Choose 2 answers**
- Managing web sessions.
- Storing JSON documents.
- Storing metadata for Amazon S3 objects.
- Running relational joins and complex updates.
- **Answer C,D.**
- **Explanation:** If all your JSON data have the same fields eg [id,name,age] then it would be better to store it in a relational database, the metadata on the other hand is unstructured, also running relational joins or complex updates would work on DynamoDB as well.

- **How can I load my data to Amazon Redshift from different data sources like Amazon RDS, Amazon DynamoDB and Amazon EC2?**
- You can load the data in the following two ways:
- You can use the COPY command to load data in parallel directly to Amazon Redshift from Amazon EMR, Amazon DynamoDB, or any SSH-enabled host.
- AWS Data Pipeline provides a high performance, reliable, fault tolerant solution to load data from a variety of AWS data sources. You can use AWS Data Pipeline to specify the data source, desired data transformations, and then execute a pre-written import script to load your data into Amazon Redshift.

- **Your application has to retrieve data from your user's mobile every 5 minutes and the data is stored in DynamoDB, later every day at a particular time the data is extracted into S3 on a per user basis and then your application is later used to visualize the data to the user. You are asked to optimize the architecture of the backend system to lower cost, what would you recommend?**

- Create a new Amazon DynamoDB (able each day and drop the one for the previous day after its data is on Amazon S3.

- Introduce an Amazon SQS queue to buffer writes to the Amazon DynamoDB table and reduce provisioned write throughput.

- Introduce Amazon Elasticache to cache reads from the Amazon DynamoDB table and reduce provisioned read throughput.

- Write data directly into an Amazon Redshift cluster replacing both Amazon DynamoDB and Amazon S3.

- **Answer C.**

- **Explanation:** Since our work requires the data to be extracted and analyzed, to optimize this process a person would useprovisioned IO, but since it is expensive, using a ElastiCache memoryinsread to cache the results in the memory can reduce the provisioned read throughput and hence reduce cost without affecting the performance.

- **A startup is running a pilot deployment of around 100 sensors to measure street noise and air quality in urban areas for 3 months. It was noted that every month around 4GB of sensor data is generated. The company uses a load balanced auto scaled layer of EC2 instances and a RDS database with 500 GB standard storage. The pilot was a success and now they want to deploy at least 100K sensors which need to be supported by the backend. You need to store the data for at least 2 years to analyze it. Which setup of the following would you prefer?**

- Add an SQS queue to the ingestion layer to buffer writes to the RDS instance

- Ingest data into a DynamoDB table and move old data to a Redshift cluster

- Replace the RDS instance with a 6 node Redshift cluster with 96TB of storage

- Keep the current architecture but upgrade RDS storage to 3TB and 10K provisioned IOPS

- **Answer C.**
  Explanation: A Redshift cluster would be preferred because it easy to scale, also the work would be done in parallel through the nodes, therefore is perfect for a bigger workload like our use case. Since each month 4 GB of data is generated, therefore in 2 year, it should be around 96 GB. And since the servers will be increased to 100K in number, 96 GB will approximately become 96TB. Hence option C is the right answer.

- **Explain What is Redshift ?**
- **Answer:** The executes it easy and cost-effective to efficiently investigate all your data employing your current marketing intelligence devices which is a completely controlled, high-speed, it is petabyte-scale data repository service known as Redshift.

- **How does Elastic Beanstalk apply updates?**
- By having a duplicate ready with updates before swapping.
- By updating on the instance while it is running
- By taking the instance down in the maintenance window
- Updates should be installed manually
- **Answer A.**
- **Explanation:** Elastic Beanstalk prepares a duplicate copy of the instance, before updating the original instance, and routes your traffic to the duplicate instance, so that, incase your updated application fails, it will switch back to the original instance, and there will be no downtime experienced by the users who are using your application.

- **How is AWS Elastic Beanstalk different than AWS OpsWorks?**

- AWS Elastic Beanstalk is an application management platform while OpsWorks is a configuration management platform. BeanStalk is an easy to use service which is used for deploying and scaling web applications developed with Java, .Net, PHP, Node.js, Python, Ruby, Go and Docker. Customers upload their code and Elastic Beanstalk automatically handles the deployment. The application will be ready to use without any infrastructure or resource configuration.

- In contrast, AWS Opsworks is an integrated configuration management platform for IT administrators or DevOps engineers who want a high degree of customization and control over operations.

- **What happens if my application stops responding to requests in beanstalk?**
- AWS Beanstalk applications have a system in place for avoiding failures in the underlying infrastructure. If an Amazon EC2 instance fails for any reason, Beanstalk will use Auto Scaling to automatically launch a new instance. Beanstalk can also detect if your application is not responding on the custom link, even though the infrastructure appears healthy, it will be logged as an environmental event(e.g a bad version was deployed) so you can take an appropriate action.

- **How To Use Amazon SQS?**
- **Answer :**
- Amazon SQS (Simple Queue Service) is a message passing mechanism that is used for communication between different connectors that are connected with each other. It also acts as a communicator between various components of Amazon. It keeps all the different functional components together. This functionality helps different components to be loosely coupled, and provide an architecture that is more failure resilient system.

- **A company needs to monitor the read and write IOPS for their AWS MySQL RDS instance and send real-time alerts to their operations team. Which AWS services can accomplish this?**
- Amazon Simple Email Service
- Amazon CloudWatch
- Amazon Simple Queue Service
- Amazon Route 53
- **Answer B.**
- **Explanation:** Amazon CloudWatch is a cloud monitoring tool and hence this is the right service for the mentioned use case. The other options listed here are used for other purposes for example route 53 is used for DNS services, therefore CloudWatch will be the apt choice.

- **How is AWS OpsWorks different than AWS CloudFormation?**

- OpsWorks and CloudFormation both support application modelling, deployment, configuration, management and related activities. Both support a wide variety of architectural patterns, from simple web applications to highly complex applications. AWS OpsWorks and AWS CloudFormation differ in abstraction level and areas of focus.

- AWS CloudFormation is a building block service which enables customer to manage almost any AWS resource via JSON-based domain specific language. It provides foundational capabilities for the full breadth of AWS, without prescribing a particular model for development and operations. Customers define templates and use them to provision and manage AWS resources, operating systems and application code.

- In contrast, AWS OpsWorks is a higher level service that focuses on providing highly productive and reliable DevOps experiences for IT administrators and ops-minded developers. To do this, AWS OpsWorks employs a configuration management model based on concepts such as stacks and layers, and provides integrated experiences for key activities like deployment, monitoring, auto-scaling, and automation. Compared to AWS CloudFormation, AWS OpsWorks supports a narrower range of application-oriented AWS resource types including Amazon EC2 instances, Amazon EBS volumes, Elastic IPs, and Amazon CloudWatch metrics.

- **In CloudFront what happens when content is NOT present at an Edge location and a request is made to it?**
- An Error "404 not found" is returned
- CloudFront delivers the content directly from the origin server and stores it in the cache of the edge location
- The request is kept on hold till content is delivered to the edge location
- The request is routed to the next closest edge location
- **Answer B.**
- **Explanation:** CloudFront is a content delivery system, which caches data to the nearest edge location from the user, to reduce latency. If data is not present at an edge location, the first time the data may get transferred from the original server, but from the next time, it will be served from the cached edge.

- **If I'm using Amazon CloudFront, can I use Direct Connect to transfer objects from my own data center?**

- Yes. Amazon CloudFront supports custom origins including origins from outside of AWS. With AWS Direct Connect, you will be charged with the respective data transfer rates.

- **What Are The Different Types Of Events Triggered By Amazon Cloud Front?**
- **Answer :**
- **Different types of events triggered by Amazon CloudFront are as follows:**
- **Viewer Request:** When an end user or a client program makes an HTTP/HTTPS request to CloudFront, this event is triggered at the Edge Location closer to the end user.
- **Viewer Response:** When a CloudFront server is ready to respond to a request, this event is triggered.
- **Origin Request:** When CloudFront server does not have the requested object in its cache, the request is forwarded to Origin server. At this time this event is triggered.
- **Origin Response:** When CloudFront server at an Edge location receives the response from Origin server, this event is triggered.

- **What Are The Main Features Of Amazon Cloud Front?**

- **Answer :**

- Some of the main features of Amazon CloudFront are as follows: Device Detection Protocol Detection Geo Targeting Cache Behavior Cross Origin Resource Sharing Multiple Origin Servers HTTP Cookies Query String Parameters Custom SSL.

- **What is Geo Restriction in CloudFront ?**
- **Answer:** Geo restriction, also known as geoblocking, is used to prevent users in specific geographic locations from accessing content that you're distributing through a CloudFront web distribution.

- **A customer wants to capture all client connection information from his load balancer at an interval of 5 minutes, which of the following options should he choose for his application?**

- Enable AWS CloudTrail for the loadbalancer.

- Enable access logs on the load balancer.

- Install the Amazon CloudWatch Logs agent on the load balancer.

- Enable Amazon CloudWatch metrics on the load balancer.

- **Answer A.**

- **Explanation:** AWS CloudTrail provides inexpensive logging information for load balancer and other AWS resources This logging information can be used for analyses and other administrative work, therefore is perfect for this use case.

- **A customer wants to track access to their Amazon Simple Storage Service (S3) buckets and also use this information for their internal security and access audits. Which of the following will meet the Customer requirement?**
- Enable AWS CloudTrail to audit all Amazon S3 bucket access.
- Enable server access logging for all required Amazon S3 buckets.
- Enable the Requester Pays option to track access via AWS Billing
- Enable Amazon S3 event notifications for Put and Post.
- **Answer A.**
- **Explanation:** AWS CloudTrail has been designed for logging and tracking API calls. Also this service is available for storage, therefore should be used in this use case.

- **Which of the following are true regarding AWS CloudTrail? (Choose 2 answers)**
- CloudTrail is enabled globally
- CloudTrail is enabled on a per-region and service basis
- Logs can be delivered to a single Amazon S3 bucket for aggregation.
- CloudTrail is enabled for all available services within a region.
- **Answer B,C.**
- **Explanation:** Cloudtrail is not enabled for all the services and is also not available for all the regions. Therefore option B is correct, also the logs can be delivered to your S3 bucket, hence C is also correct.

- **What happens if CloudTrail is turned on for my account but my Amazon S3 bucket is not configured with the correct policy?**

- CloudTrail files are delivered according to S3 bucket policies. If the bucket is not configured or is misconfigured, CloudTrail might not be able to deliver the log files.

- **What is AWS Data Pipeline ? and what are the components of AWS Data Pipeline ?**
- **Answer:**A web service that you can implement to automate the journey and exchange of data are called AWS Data Pipeline. Beside AWS you can define data-driven workflows so that companies can be reliant on the favorable execution of initial jobs.
- **The succeeding components of AWS Data Pipeline work collectively to get your data:**
- A pipeline key indicates the business appraised of your data administration. For additional data, observe Pipeline Definition File Syntax.
- A pipeline registers and tracks responsibilities. You upload your pipeline accuracy to the pipeline and when excite the pipeline. You can control the pipeline variety for a working pipeline and stimulate the pipeline regularly for it to receive the issue. You can deactivate the pipeline, replace a data storage, and before initiate the pipeline newly. If you are terminated with your pipeline, you can cancel it.
- Task Runner studies for services and then performs those duties. For instance, Task Runner could replicate log records to Amazon S3 and push Amazon EMR organizations. Task Runner is uns automatically on devices designed by your pipeline keys. You can create a custom task runner application, or you can make the Task Runner form that is offered by AWS Data Pipeline.

- **What is Amazon EMR ?**
- **Answer:** Amazon Elastic MapReduce (Amazon EMR) is a survived cluster stage that interprets working big data structures, before-mentioned as Apache Spark and Apache Hadoop, on AWS to treat and investigate enormous volumes of data. By adopting these structures and relevant open-source designs, such as Apache Pig and Apache Hive, you can prepare data for analytics goals and marketing intellect workloads. Additionally, you can use Amazon EMR to convert and migrate vast masses of information into and of other AWS data repositories and databases, such as Amazon DynamoDB and Amazon Simple Storage Service (Amazon S3).

- **If my AWS Direct Connect fails, will I lose my connectivity?**
- If a backup AWS Direct connect has been configured, in the event of a failure it will switch over to the second one. It is recommended to enable Bidirectional Forwarding Detection (BFD) when configuring your connections to ensure faster detection and failover. On the other hand, if you have configured a backup IPsec VPN connection instead, all VPC traffic will failover to the backup VPN connection automatically. Traffic to/from public resources such as Amazon S3 will be routed over the Internet. If you do not have a backup AWS Direct Connect link or a IPsec VPN link, then Amazon VPC traffic will be dropped in the event of a failure.

- **I created a key in Oregon region to encrypt my data in North Virginia region for security purposes. I added two users to the key and an external AWS account. I wanted to encrypt an object in S3, so when I tried, the key that I just created was not listed. What could be the reason?**

- External aws accounts are not supported.

- AWS S3 cannot be integrated KMS.

- The Key should be in the same region.

- New keys take some time to reflect in the list.

- **Answer C.**

- **Explanation:** The key created and the data to be encrypted should be in the same region. Hence the approach taken here to secure the data is incorrect.

- **Which of the following services you would not use to deploy an app?**
- Elastic Beanstalk
- Lambda
- Opsworks
- CloudFormation
- **Answer B.**
- **Explanation:** Lambda is used for running server-less applications. It can be used to deploy functions triggered by events. When we say serverless, we mean without you worrying about the computing resources running in the background. It is not designed for creating applications which are publicly accessed.

- **What happens when one of the resources in a stack cannot be created successfully in AWS OpsWorks?**
- When an event like this occurs, the "automatic rollback on error" feature is enabled, which causes all the AWS resources which were created successfully till the point where the error occurred to be deleted. This is helpful since it does not leave behind any erroneous data, it ensures the fact that stacks are either created fully or not created at all. It is useful in events where you may accidentally exceed your limit of the no. of Elastic IP addresses or maybe you may not have access to an EC2 AMI that you are trying to run etc.

- **What is AWS WAF ? What are the potential benefits of using WAF ?**

- **Answer:** AWS WAF is a web application firewall that lets you monitor the HTTP and HTTPS applications that are promoted to Amazon CloudFront and gives you regulate path to your content. Based on circumstances that you stipulate, such as the IP addresses that grants originate from or the consequences of query series, CloudFront returns to applications either with the petitioned content or with an HTTP 403 situation code (Forbidden). You can further configure CloudFront to restore a pattern failure page when an application is obstructed.

- **Advantages of utilizing WAF:**

- Further security versus web initiatives relating circumstances that you designate. You can describe situations by managing characteristics of web inquiries such as the IP address that the applications originate from, the rates in headers, chains that rise in the applications, and the presence of hateful SQL code in the call, which is recognized as SQL injection.

- Rules that you can reuse for various network appeals

- Real-time metrics and examined web demands

- Computerized command practicing the AWS WAF API