**Aws Devops Interview Questions & Answers**

**What Is Amazon Web Services In Devops?**

AWS provides services that help you practice DevOps at your company and that are built first for use with AWS. These tools automate manual tasks, help teams manage complex environments at scale, and keep engineers in control of the high velocity that is enabled by DevOps.

**What Is The Role Of A Devops Engineer?**

There’s no formal career track for becoming a DevOps engineer. They are either developers who get interested in deployment and network operations, or sysadmin who have a passion for scripting and coding, and move into the development side where they can improve the planning of test and deployment.

**What Is Devops With Cloud Computing?**

Inseparable development and operations practices are universally relevant. Cloud computing, agile development, and DevOps are interlocking parts of a strategy for transforming IT into a business adaptability enabler. If cloud is an instrument, then DevOps is the musician that plays it.

**Why Do We Use Aws For Devops?**

**There are many benefits of using AWS for DevOps, thery are:**

**Get Started Fast** – Each AWS service is ready to use if you have an AWS account. There is no setup required or software to install. **Fully Managed Services** – These services can help you take advantage of AWS resources quicker. You can worry less about setting up, installing, and operating infrastructure on your own. This lets you focus on your core product.

**Built for Scale** – You can manage a single instance or scale to thousands using AWS services. These services help you make the most of flexible compute resources by simplifying provisioning, configuration, and scaling.

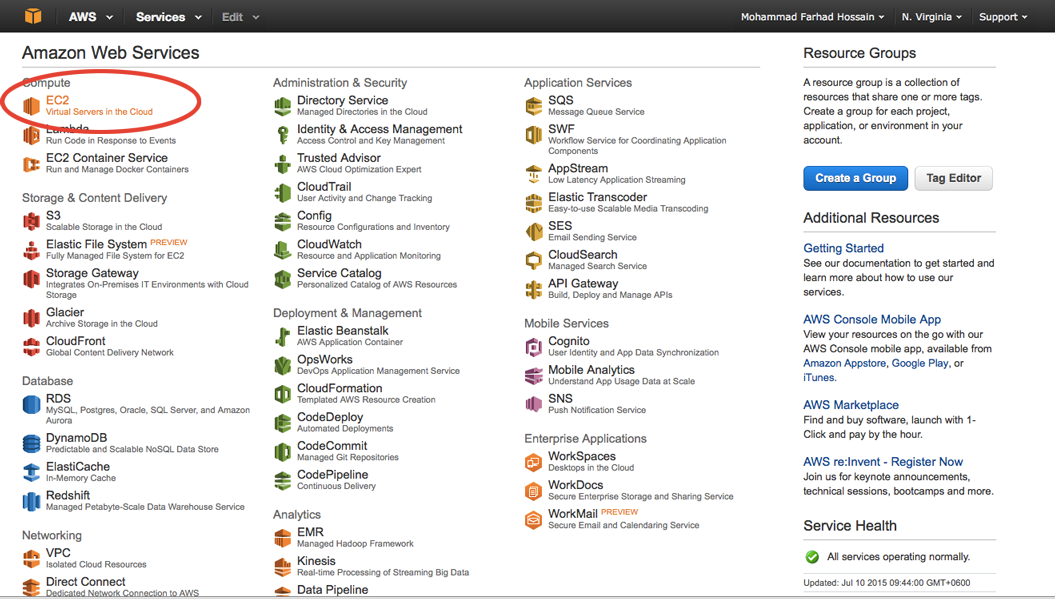
**Programmable** – You have the option to use each service via the AWS Command Line Interface or through APIs and SDKs. You can also model and provision AWS resources and your entire AWS infrastructure using declarative AWS Cloud Formation templates.

**Automation** – AWS helps you use automation so you can build faster and more efficiently. Using AWS services, you can automate manual tasks or processes such as deployments, development & test workflows, container management, and configuration management.

**Secure** – Use AWS Identity and Access Management (IAM) to set user permissions and policies. This gives you granular control over who can access your resources and how they access those resources.

**Large Partner Ecosystem** – AWS supports a large ecosystem of partners which integrate with and extend AWS services. Use your preferred third-party and open source tools with AWS to build an end-to-end solution.

**Pay-As-You-Go** – With AWS purchase services as you need them and only for the period when you plan to use them. AWS pricing has no upfront fees, termination penalties, or long term contracts. The AWS Free Tier helps you get started with AWS.



**What Is Devops Tooling By Aws?**

AWS provides services that help you practice DevOps at your company and that are built first for use with AWS. These tools automate manual tasks, help teams manage complex environments at scale, and keep engineers in control of the high velocity that is enabled by DevOps.

**How Do You Handle Continuous Integration And Continuous Delivery In Aws Devops?**

The AWS Developer Tools help you securely store and version your application’s source code and automatically build, test, and deploy your application to AWS or your on-premises environment.

Start with AWS Code Pipeline to build a continuous integration or continuous delivery workflow that uses AWS Code Build, AWS Code Deploy, and other tools, or use each service separately.

**What Is Aws Code Pipeline In Aws Devops?**

AWS Code Pipeline is a continuous integration and continuous delivery service for fast and reliable application and infrastructure updates. Code Pipeline builds, tests, and deploys your code every time there is a code change, based on the release process models you define. This enables you to rapidly and reliably deliver features and updates.

**What Is Aws Code Build In Aws Devops?**

AWS Code Build is a fully managed build service that compiles source code, runs tests, and produces software packages that are ready to deploy. With Code Build, you don’t need to provision, manage, and scale your own build servers. Code Build scales continuously and processes multiple builds concurrently, so your builds are not left waiting in a queue.

**What Is Aws Code Deploy In Aws Devops?**

AWS Code Deploy automates code deployments to any instance, including Amazon EC2 instances and on-premises servers. AWS Code Deploy makes it easier for you to rapidly release new features, helps you avoid downtime during application deployment, and handles the complexity of updating your applications.

**What Is Aws Code Star In Aws Devops?**

AWS Code Star enables you to quickly develop, build, and deploy applications on AWS. AWS Code Star provides a unified user interface, enabling you to easily manage your software development activities in one place. With AWS Code Star, you can set up your entire continuous delivery tool chain in minutes, allowing you to start releasing code faster.

**How Instacart Uses Aws Devops?**

Instacart uses AWS Code Deploy to automate deployments for all of its front-end and back-end services. Using AWS Code Deploy has enabled Instacart developers to focus on their product and worry less about deployment operations.

**How Lulu Lemon Athletic Uses Aws Devops?**

Lulu lemon athletic uses a variety of AWS services to engineer a fully automated, continuous integration and delivery system. Lulu lemon deploys artifacts distributed via Amazon S3 using AWS Code Pipeline. From this stage, the artifacts are deployed to AWS Elastic Beanstalk.

**What Is Amazon Elastic Container Service In Aws Devops?**

Amazon Elastic Container Service (ECS) is a highly scalable, high performance container management service that supports Docker containers and allows you to easily run applications on a managed cluster of Amazon EC2 instances.

**What Is Aws Lambda In Aws Devops?**

AWS Lambda lets you run code without provisioning or managing servers. With Lambda, you can run code for virtually any type of application or backend service – all with zero administration. Just upload your code and Lambda takes care of everything required to run and scale your code with high availability.

**What Are Aws Developer Tools?**

The AWS Developer Tools is a set of services designed to enable developers and IT operations professionals practicing DevOps to rapidly and safely deliver software.

Together, these services help you securely store and version control your application’s source code and automatically build, test, and deploy your application to AWS or your on-premises environment. You can use AWS Code Pipeline to orchestrate an end-to-end software release workflow using these services and third-party tools or integrate each service independently with your existing tools.

**What Is Code Commit In Aws Devops?**

AWS Code Commit is a fully-managed source control service that makes it easy for companies to host secure and highly scalable private Git repositories. Code Commit eliminates the need to operate your own source control system or worry about scaling its infrastructure. You can use Code Commit to securely store anything from source code to binaries, and it works seamlessly with your existing Git tools.

**What Are The Benefits Of Aws Code Build In Aws Devops?**

AWS Code Build is a fully managed build service that compiles source code, runs tests, and produces software packages that are ready to deploy. With Code Build, you don’t need to provision, manage, and scale your own build servers.

Code Build scales continuously and processes multiple builds concurrently, so your builds are not left waiting in a queue. You can get started quickly by using prepackaged build environments, or you can create custom build environments that use your own build tools. With Code Build, you are charged by the minute for the computer resources you use.

**AWS Code Build Benefits:**

**Fully Managed Build Service** – AWS Code Build eliminates the need to set up, patch, update, and manage your own build servers and software. There is no software to install or manage.

**Continuous Scaling** – AWS Code Build scales automatically to meet your build volume. It immediately processes each build you submit and can run separate builds concurrently, which means your builds are not left waiting in a queue.

**Pay as You Go** – With AWS Code Build, you are charged based on the number of minutes it takes to complete your build.

**Extensible** – You can bring your own build tools and programming runtimes to use with AWS Code Build by creating customized build environments in addition to the prepackaged build tools and runtimes supported by Code Build.

**Enables Continuous Integration and Delivery** – AWS Code Build belongs to a family of AWS Code Services, which you can use to create complete, automated software release workflows for continuous integration and delivery (CI/CD). You can also integrate Code Build into your existing CI/CD workflow.

**Secure** – With AWS Code Build, your build artifacts are encrypted with customer-specific keys that are managed by the AWS Key Management Service (KMS). Code Build is integrated with AWS Identity and Access Management (IAM), so you can assign user-specific permissions to your build projects.

**What Is Amazon Ec2 In Aws Devops?**

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides secure, resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers.

**What Is Amazon S3 In Aws Devops?**

Amazon Simple Storage Service (Amazon S3) is object storage with a simple web service interface to store and retrieve any amount of data from anywhere on the web.

**What Is Amazon Rds In Aws Devops?**

Amazon Relational Database Service (Amazon RDS) makes it easy to set up, operate, and scale a relational database in the cloud.

**What Is Amazon Quick Sight In Aws Devops?**

Amazon Quick Sight is a fast, cloud-powered business analytics service that makes it easy to build visualizations, perform ad-hoc analysis, and quickly get business insights from your data.

**What Is Aws Iot In Aws Devops?**

AWS IoT is a managed cloud platform that lets connected devices easily and securely interact with cloud applications and other devices.

**What Are The Benefits Of Aws Code Deploy In Aws Devops?**

AWS Code Deploy is a service that automates software deployments to a variety of computer services including Amazon EC2, AWS Lambda, and instances running on-premises.

AWS Code Deploy makes it easier for you to rapidly release new features, helps you avoid downtime during application deployment, and handles the complexity of updating your applications.

**AWS Code Deploy Benefits:**

**Automated Deployments** – AWS Code Deploy fully automates your software deployments, allowing you to deploy reliably and rapidly. You can consistently deploy your application across your development, test, and production environments whether deploying to Amazon EC2, AWS Lambda, or instances running on-premises. The service scales with your infrastructure so you can deploy to one Lambda function or thousands of EC2 instances.

**Minimize Downtime** – AWS Code Deploy helps maximize your application availability during the software deployment process. It introduces changes incrementally and tracks application health according to configurable rules. Software deployments can easily be stopped and rolled back if there are errors.

**Centralized Control** – AWS Code Deploy allows you to easily launch and track the status of your application deployments through the AWS Management Console or the AWS CLI. Code Deploy gives you a detailed report allowing you to view when and to where each application revision was deployed.

**Easy To Adopt** – AWS Code Deploy is platform and language agnostic, works with any application, and provides the same experience whether you’re deploying to Amazon EC2 or AWS Lambda. You can easily reuse your existing setup code. Code Deploy can also integrate with your existing software release process or continuous delivery tool chain (e.g., AWS Code Pipeline, GitHub, and Jenkins).

**What Is Vpc?**

A virtual private cloud (VPC) is a virtual network dedicated to your AWS account. You can configure or create your VPC as per requirement like select region, create subnets (IP- CIDR), configure route tables, security groups, Internet gateway etc to your AWS account By which you can launch your AWS resources, such as Amazon EC2, RDS instances etc, into your VPC.

So basically you can say that Amazon VPC is the networking layer for AWS Infrastructure.

**What Is Vpc Peering?**

A VPC peering connection is a networking connection between two VPCs that enables you to route traffic between them using private IP addresses. And instances which are in VPC can communicate with each other as if they are within the same network.

You can create a VPC peering connection between your own VPCs, or with a VPC in another AWS account within a single region.

If you have more than one AWS account within a same region and wants to share or transfer the data, you can peer the VPCs across those accounts to create a file sharing network. You can also use a VPC peering connection to allow other VPCs to access resources you have in one of your VPCs.

A VPC peering connection can help you to facilitate the transfer of data.

**What Is Vpc Endpoints?**

A VPC endpoint enables you to create a private connection between your VPC with another AWS service without requiring access over the Internet, through a NAT device, a VPN connection, or AWS Direct Connect. They are horizontally scaled, redundant, and highly available VPC components that allow communication between instances in your VPC and AWS services without imposing availability risks or bandwidth constraints on your network traffic.

An endpoint enables instances in your VPC to use their private IP addresses to communicate with resources in other services. Don’t require public IP addresses to your instances, and you don’t need an Internet gateway, a NAT device, or a virtual private gateway in your VPC.

**What Is Ebs (elastic Block Storage)?**

EBS is a virtualized SAN or storage area network. Elastic Block Store (Amazon EBS) provides persistence block level storage volumes for use with EC2 instances. EBS volumes are highly available and reliable storage volumes that can be attached to any running instance that is in the same Availability Zone.

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

Amazon S3 is stand for Simple storage service that is storage for the Internet. It as a, “simple storage service that offers software developers a highly-scalable, reliable, and low-latency data storage infrastructure at very low costs”.

Amazon S3 provides a simple web service interface which you can use to store and retrieve any amount of data, at any time, from anywhere on the web. Using this web service, developers can easily build applications that make use of Internet storage.

You can think of it like ftp storage, where you can move files to and from there, but not mount it like a file system. 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.

Encryption should be considered for sensitive data, as S3 is a proprietary technology developed by Amazon themselves, and yet to be proven from a security standpoint.

**What Is An Ami?**

AMI stands for Amazon Machine Image. It is effectively a snapshot of the root filesystem. AWS AMI provides the information required to launch an instance, which is a virtual server in the cloud. You specify an AMI when you launch an instance, and you can launch as many instances from the AMI as you need. You can also launch instances from as many different AMIs as you need.

**An AMI includes the following:**

A template for the root volume for the instance (such as an operating system, an application server, and applications).

Launch permissions that control which AWS accounts can use the AMI to launch instances.

A block device mapping that specifies the volumes to attach to the instance when it’s launched.

Build a new AMI by first spinning up and instance from a trusted AMI. Then adding packages and components as required. Be wary of putting sensitive data onto an AMI. For instance your access credentials should be added to an instance after spin up. With a database, mount an outside volume that holds your Mysql data after spin up as well.

**What Is The Relation Between Instance And Ami?**

An Amazon Machine Image (AMI) is a template that contains a software configuration (for example, an operating system, an application server, and applications). From an AMI, you launch an instance, which is a copy of the AMI running as a virtual server in the cloud.

You can launch different types of instances from a single AMI. An instance type determines the hardware of the host computer used for your instance. Each instance type offers different compute and memory capabilities.

**What Automation Tools Can You Use To Spin Up Servers?**

**Here below many types tools given any of the following tools can be used:**

Roll-your-own scripts, and use the AWS API tools. Such scripts could be written in bash, Perl or other language or your choice.

Use a configuration management and provisioning tool like Ansible, puppet or its successor Opscode Chef Etc.

You might also look towards a tool like Scalr. Lastly you can go with a managed solution such as Right scale.

**What Are The Different Deployment Models For Cloud?**

**The different models are:**

Private Cloud

Public Cloud

Hybrid Clouds

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

Horizontally Scaling

Vertically Scaling

Auto scaling 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 can 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. You’ve scaled horizontally without any operator intervention!

**Vertically Scaling:** This is an incredible feature of AWS and cloud virtualization. Spin up a new larger instance than the one you are currently running. Pause that instance and detach the root ebs volume from this server and discard. Then stop your live instance, detach its root volume. Note the unique device ID and attach that root volume to your new server. And the start it again. You have scaled vertically in-place!!

**What Is The Difference Between Scalability And Elasticity?**

Scalability is the ability of a system to increase the workload on its current hardware resources to handle variability in demand.

Elasticity is the ability of a system to increase the workload on its current and additional hardware resources, thereby enabling businesses to meet demand without investing in infrastructure up-front.

**List Out Different Layers Which Define Cloud Architecture?**

**There are five layers:**

Cloud Controller (CLC)

Walrus

Cluster Controller

Storage Controller (SC)

Node Controller (NC)

**What Are The Security Laws Which Are Implemented To Secure Data In A Cloud?**

**The security laws which are implemented to secure data in cloud are:**

Processing

File

Output reconciliation

Input Validation

Security and Backup

**Why Api’s Have In Cloud Services?**

**Application Programming Interface (API) has the following uses:**

It eliminates the need to write fully fledged programs.

It provides the instructions to set up communication between one or more applications.

It allows easy creation of applications and links the cloud services with other systems.

**How Many Data Centers Are Deployed For Cloud Computing? What Are They?**

**There are two data centers in cloud computing:**

Containerized Data centers ,Low Density Data centers

**What Is The Security For Amazon Ec2?**

**There are several best practices for 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.

**How Is Buffer Used In Amazon Web Services?**

Buffer is used to make the system more resilient to burst of traffic or load by synchronizing different components. The components always receive and process the requests in an unbalanced way. Buffer keeps the balance between different components and makes them work at the same speed to provide faster services.

**What Is The Function Of Amazon Elastic Compute Cloud?**

Amazon Elastic compute cloud also known as Amazon EC2 is an Amazon web service that provides scalable resources and makes the computing easier for developers.

**The main functions of Amazon EC2 are:**

It provides easy configurable options and allow user to configure the capacity.

It provides the complete control of computing resources and let the user run the computing environment according to his requirements.

It provides a fast way to run the instances and quickly book the system hence reducing the overall time.

It provides scalability to the resources and changes its environment according to the requirement of the user.

It provides varieties of tools to the developers to build failure resilient applications.

**What Are The Different Components Used In Aws?**

**The components that are used in AWS are:**

**Amazon S3:** it is used to retrieve input data sets that are involved in making cloud architecture and also used to store the output data sets that is the result of the input.

**Amazon SQS:** it is used for buffering requests that is received by the controller of the Amazon. It is the component that is used for communication between different controllers.

**Amazon Simple DB:** it is used to store intermediate status log and the tasks that are performed by the user/

**Amazon EC2:** it is used to run a large distributed processing on the Hadoop cluster. It provides automatic parallelization and job scheduling.

**Explain The Function Of An Amazon Ec2 Instance Like Stopping, Starting And Terminating?**

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, and then the attached Amazon EBS volumes are deleted unless the volume’s delete On Termination attribute is set to false. The instance itself is also deleted, and you can’t start the instance again at a later time.

**AWS EC2 Interview Questions & Answers**

**What Is Amazon Ec2 Service ?**

Amazon Elastic Compute Cloud (Amazon EC2) is a Amazon 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.

**What Are The Features Of The Amazon Ec2 Service ?**

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 (Salesforce Certification Training) connect to your own network (known as virtual private clouds – VPCs)

**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 Complete Amazon Web Services Tutorials

**Explain Storage For Amazon Ec2 Instance ?**

Amazon EC2 provides many data storage options for your instances. Each option has a unique combination of performance and durability. These storages can be used independently or in combination to suit your requirements.

**There are mainly four types of storages provided by AWS:**

**Amazon EBS:** Its durable, block-level storage volumes can attached in running Amazon EC2 instance. The Amazon EBS volume persists independently from the running life of an Amazon EC2 instance. After an EBS volume is attached to an instance, you can use it like any other physical hard drive. Amazon EBS encryption feature supports encryption feature.

**Amazon EC2 Instance Store:** Storage disk that is attached to the host computer is referred to as instance store. The instance storage provides temporary block-level storage for Amazon EC2 instances. The data on an instance store volume persists only (sap training) during the life of the associated Amazon EC2 instance; if you stop or terminate an instance, any data on instance store volumes is lost.

**Amazon S3:** Amazon S3 provides access to reliable and inexpensive data storage infrastructure. It is designed to make web-scale computing easier by enabling you to store and retrieve any amount of data, at any time, from within Amazon EC2 or anywhere on the web.

**Adding Storage:** Every time you launch an instance from an AMI, a root storage device is created for that instance. The root storage device contains all the information necessary to boot the instance. You can specify storage volumes in addition to the root device volume when you create an AMI or launch an instance using block device mapping.

**Explain Stopping, Starting, And Terminating An Amazon Ec2 Instance ?**

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.

**What Are The Basic Structures Of The Amazon Ec2 Service ?**

As the Amazon EC2 service is a cloud facility so it has entirely all the cloud features. Amazon EC2 delivers 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)

**Describe Storage For Amazon Ec2 Occurrence ?**

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 storages 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.

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**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.

**Can S3 Be Cast-off With Ec2 Instances, In Case Of “yes” Please Specify How ?**

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

**What Are Regions And Availability Zones In Amazon Ec2 ? Explain In Brief ?**

Amazon EC2 is hosted in multiple locations world-wide. These locations are composed of regions and Availability Zones. Each region is a separate geographic area. Each region has multiple, isolated locations known as Availability Zones.

Each region is completely independent. Each Availability Zone is isolated, but the Availability Zones in a region are connected through low-latency links. The following diagram illustrates the relationship between regions and Availability Zones.

**Explain How To Launch Ec2 Instance In An Availability Zone ?**

Each region is completely independent and each Availability Zone is isolated. When you view your resources, you’ll only see the resources tied to the region you have specified.

To launch a EC2 instance, you must select an AMI that’s in the same region (if the AMI is in another region then you can copy the AMI to the region you are using). Now select an Availability Zone or let AWS choose for you. After creating the EC2 instance, it will show up in selected Availability Zone.

**What Is Amazon Ec2 Root Device Volume ?**

When you launch an instance, the Root Device Volume contains the image used to boot the instance.

**You can launch an instance from one of two types of AMIs:**

Instance store-backed AMI

EBS based storage

**How To Persist Root Device Volume In Amazon Ec2 Instance ?**

By default, the root device volume for an AMI backed by Amazon EBS is deleted when the instance terminates. To change the default behavior, set the DeleteOnTermination attribute to false using a block device mapping.

To change the root device volume of an instance to persist at launch using the console

Open the Amazon EC2 console.

From the Amazon EC2 console dashboard, click Launch Instance.

On the Choose an Amazon Machine Image (AMI) page, choose the AMI to use and click Select.

Follow the wizard to complete the Choose an Instance Type and Configure Instance Details pages.

On the Add Storage page, deselect the Delete On Termination check box for the root volume.

Complete the remaining wizard pages, and then click Launch.

Changing the Root Volume of an Instance to Persist Using the AWS CLI

Use the run-instances command to preserve the root volume by including a block device mapping that sets its DeleteOnTermination attribute for to false.

**What Is Security Group In Amazon Ec2 ?**

Security groups act as a firewall for associated instances, controlling both inbound and outbound traffic at the instance level.

**What Are The Features Of Security Group In Amazon Ec2 ?**

**Following are the features of the Security Group in Amazon EC2:**

We can add rules to a security group that enable us to connect to our instance from our IP address using SSH.

We can also add rules that allow inbound and outbound HTTP and HTTPS access from anywhere.

**How To Create Security Group In Amazon Ec2 ?**

We can create Security Group in Amazon EC2 using the Amazon EC2 console. To launch instances in multiple regions, we’ll need to create a Security Group in each region.

**Following are the steps to create Security Group in Amazon EC2:**

Open the Amazon EC2 console.

From the left navigation bar, select a region for the security group.

Click Security Groups in the navigation pane.

Click Create Security Group.

Enter a name for the new security group and a description.

In the VPC list, select your VPC.

On the Inbound tab, click Add Rule for each new rule, and then click Create.

**How To Launch An Amazon Ec2 Instance ?**

We can launch Linux/Windows Amazon EC2 instance using AWS Management Console.

**Following are the steps to create Amazon EC2 instance:**

Open the Amazon EC2 console.

From the console dashboard, choose Launch Instance.

Choose an Amazon Machine Image (AMI).

Choose an Instance Type.

Click on Review and Launch to let the wizard complete the other configuration setting.

On the Review Instance Launch page, under Security Groups select a Security Group.

Click on Launch on the Review Instance Launch.

Select an Existing ket pair when it prompte for key pair.

Click on View Instance to return on the console to see instance is launching.

**How To Connect To Your Amazon Ec2 Instance ?**

There are several ways to connect to a Linux instance. One of the commonly used method is to connect Linux instance from Windows local machine using PuTTY.

**Following are the steps to connect to a Linux instance:**

Install PuTTY on your local machine.

Get your instance ID.

Get the public DNS name of the instance.

Locate the private key.

Enable inbound SSH traffic from your IP address to your instance.

Converting Your Private Key Using PuTTYgen.

Starting a PuTTY Session.

Now you are connected to your EC2 instance.

**How To Add A Ebs Volume To Your Amazon Ec2 Instance ?**

We can attach an EBS volume to one of our instances that is in the same Availability Zone as the Volume.

**Following are the steps to attache an EBS volumn to an instance using console:**

Open the Amazon EC2 console.

In the left navigation pane, choose Volumes.

Select a volume and choose Attach Volume.

Select the instance to which you want to attach the volume.

Click on Attach.

Now connect to your instance and make the volume available.

**How To Clean Up Your Amazon Ec2 Instance And Volume ?**

After we are finished with the instance we created, we can clean up by terminating the instance.

**Following are the steps to terminate the EC2 instance:**

In the navigation pane, choose Instances. In the list of instances, select the instance.

Choose Actions, then Instance State, and then choose Terminate.

Choose Yes,Terminate when prompted for confirmation.

**What Are The Best Practices For Amazon Ec2 ?**

To get the maximum benefit from and satisfaction with Amazon EC2.

**There are mainly four best practices:**

Security and Network Best Practices

Storage

Resource Management

Backup and Recovery

**What Is Amazon Machine Image And What Is The Relation Between Instance And Ami ?**

Amazon Web Services provides several ways to access Amazon EC2, like web-based interface, AWS Command Line Interface (CLI) and Amazon Tools for Windows Powershell. First, you need to sign up for an AWS account and you can access Amazon EC2.

Amazon EC2 provides a Query API. These requests are HTTP or HTTPS requests that use the HTTP verbs GET or POST and a Query parameter named Action.

**What Is Amazon Machine Image (ami) ?**

An Amazon Machine Image (AMI) is a template that contains a software configuration (for example, an operating system, an application server, and applications). From an AMI, we launch an instance, which is a copy of the AMI running as a virtual server in the cloud. We can even launch multiple instances of an AMI.

**What Is The Relation Between Instance And Ami ?**

We can launch different types of instances from a single AMI. An instance type essentially determines the hardware of the (pivotal training) host computer used for your instance. Each instance type offers different compute and memory capabilities.

After we launch an instance, it looks like a traditional host, and we can interact with it as we would do with any computer. We have complete control of our instances; we can use sudo to run commands that require root privileges.

**How To Migrate An Instance To Another Availability Zone ?**

You can migrate your EC2 instance from one Availability Zone to another.

**Following are the steps to migrate an Instance to another Availability Zone:**

Create an AMI from the running instance

Launch an instance from the AMI that you just created, specify the new Availability Zone

You can use the same instance type as the original instance, or select a new instance type

If the original instance has an associated Elastic IP address, then associate it with the new instance

If the original instance is a Reserved Instance, change the Availability Zone for your reservation

**What Is Key Pair ?**

AWS uses public-key cryptography to secure the login information for your instance. A Linux instance has no password; you use a key pair to log in to your instance securely.

You specify the name of the key pair when you launch your instance, then provide the private key when you log in using SSH.

**How To Create Key Pair ?**

We can create one using the Amazon EC2 console. To launch instances in multiple regions, we’ll need to create a key pair in each region.

**Following are the steps to create Key Pair:**

Sign in to Amaon Web Service.

From the AWS dashboard, choose EC2 to open the Amazon EC2 console.

From the navigation bar, select a region for the key pair.

In the left navigation pane, under NETWORK & SECURITY, click Key Pairs.

Click Create Key Pair.

Enter a name for the new key pair in the Key pair name field of the Create Key Pair dialog box, and then click Create.

The private key file is automatically downloaded by your browser. The base file name is the name you specified as the name of your key pair, and the file name extension is .pem.

**What Is The Use Of Key Pair ?**

Key pair is used to log in to your instance securely. This is public-key cryptography to secure the login information for your instance.

**How To Create Your Own Amazon Machine Image (ami) ?**

You can customize a instance that is launched from a public AMI and then save that configuration as a custom AMI for your own use.

Instances that you launch from your AMI use all the customizations that you’ve made.

**How To Determine The Root Device Type Of Your Ami ?**

We can determine the Root Device type of AMI using following 2 methods.

**Method 1:** Following are the steps to determine the Root Device type of an AMI using the console

Open the Amazon EC2 console

In the navigation pane, click AMIs, and select the AMI

Check the value of Root Device Type in the Details tab as follows

If the value is ebs, this is an Amazon EBS-backed AMI

If the value is instance store, this is an instance store-backed AMI

**Method 2:** Following are the steps to determine the root device type of an AMI using the command line

We can use one of the following commands.

describe-images (AWS CLI)

Get-EC2Image (AWS Tools for Windows PowerShell)

**What Is The Size Limit For Amazon Ec2 Instance Store-backed Amis And Amazon Ebs-backed Amis ?**

All AMIs are categorized as either backed by Amazon EBS or backed by instance store.

**Backed by Amazon EBS** – means that the root device for an instance launched from the AMI is an Amazon EBS volume created from an Amazon EBS snapshot.

**Backed by instance store** – means that the root device for an instance launched from the AMI is an instance store volume created from a template stored in Amazon S3.

**Root device size limit for** –

Amazon EBS – Backed is 16 TiB

Amazon Instance Store-Backed is 10 GiB

**How You’re Charged In Amazon Ec2? Explain In Detail ?**

Charges varies upon AMIs backed and storage volums.

AMIs backed by instance storage charged for: AMI storage + Instance usage

AMIs backed by Amazon EBS storage charged for: Volume storage + Usage in addition to the AMI + instance usage

When an Amazon EBS-backed instance is stopped, you are not charged for instance usage, but you are still charged for volume storage.

AWS charges a full instance hour for every transition from a stopped state to a running state, even if we transition the instance multiple times within a single hour.

**For example:** if hourly instance charge for your instance is $0.10 and if you were to run that instance for one hour without stopping it, you would be charged $0.10. If you stopped and restarted that instance twice during that hour, then you would be charged $0.30 for that hour of usage (the initial $0.10, plus 2 x $0.10 for each restart).

**What Is Shared Ami ?**

A shared AMI is an AMI that a developer created and made available for other developers to use.

One of the easiest ways to get started with Amazon EC2 is to use a shared AMI that has the components you need and then add custom content. You can also create your own AMIs and share them with others.

Use a shared AMI at your own risk. Amazon can’t vouch for the integrity or security of AMIs shared by other Amazon EC2 users. AWS recommends that you get an AMI from a trusted source.

**How To Update Ami Tools At Boot Time ?**

AWS recommends that your AMIs download and upgrade the Amazon

EC2 AMI creation tools during startup. This ensures that new AMIs based on your shared AMIs have the latest AMI tools.

**For Amazon Linux, add the following to /etc/rc.local:**

# Update the Amazon EC2 AMI tools

echo ” + Updating EC2 AMI tools”

yum update -y aws-amitools-ec2

echo ” + Updated EC2 AMI tools”

**How To Disable Password-based Logins For Root In Amazon Ec2 Instance ?**

Using a fixed root password for a public AMI is a security risk that can quickly become known. Even relying on users to change the password after the first login opens a small window of opportunity for potential abuse.

**Following are the steps to disable password-based remote logins for the root user:**

**Open the /etc/ssh/sshd\_config file with a text editor and locate the following line:**  
#PermitRootLogin yes  
**Change the line to:**  
PermitRootLogin without-password  
The location of this configuration file might differ for your distribution.

**What Is Public Key Credentials And How To Install It ?**

Amazon EC2 uses public–key cryptography to encrypt and decrypt login information. Public–key cryptography uses a public key to encrypt a piece of data, such as a password, then the recipient uses the private key to decrypt the data. The public and private keys are known as a key pair.

After configuring the AMI to prevent logging in using a password, you must make sure users can log in using another mechanism.

**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.

**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.

**Is It Possible To Change The Private Ip Addresses Of An Ec2 While It Is Running/stopped In A Vpc ?**

The primary private IP address cannot be changed. Secondary private addresses can be unassigned, assigned or moved between interfaces or instances at any point.

**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.

**If You Want To Launch Amazon Elastic Compute Cloud (ec2) Instances And Assign Each Instance A Predetermined Private Ip Address You Should ?**

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.

**Explain What Happens When I Reboot An Ec2 Instance ?**

Rebooting an instance is like rebooting a PC. The hard disk isn’t affected. You don’t return to the image’s original state, but the contents of the hard disks are those before the reboot.

Rebooting isn’t associated with billing. Billing starts when you instantiate an image and stops when you terminate it. Rebooting in between hasn’t any effect.

**How You Will Change The Root Ebs Device Of My Amazon Ec2 Instance ?**

Stop the instance.

Detach the root EBS volume.

Attach the alternate EBS volume (as the root e.g. /dev/sda1)

Start the instance.

This presupposes that your alternate EBS volume is bootable, of course – it has to contain the bootable OS image.

**What Is The Underlying Hypervisor For Ec2 ?**

Xen

**What Are Spot Instances In Amazon Ec2 ?**

In Amazon EC2, we can even bid for getting a computing instance. Any instance procured by bidding is a Spot Instance. Multiple users bid for an EC2 Instance. Once the bid price exceeds the Spot price, the user with the highest bid gets it. As long as their bid price remains higher than the Spot price, they can keep using it.

Spot price varies with the supply and demand. Once Spot price exceeds Bid price, the instance will be taken back from the user.

**What Is The Difference Between A Spot Instance And A Demand Instance On Ec2 ?**

“On-Demand” instances allow the user to use the compute by hour without requiring long term commitment. There are no guarantees that the user will always be able to launch specific instance types in an availability zone, though AWS tries it’s best to meet the needs. This service is preferable for POCs and they do not suffer an interruption of the service(by AWS) like Spot instances.

“Spot” instances are a bid\_for\_low\_price version of On-Demand instances, but could be shut down by AWS anytime the Spot instance price goes higher than bid price. Spot price fluctuates based on the supply and demand of the capacity. It’s essentially the leftover capacity of AWS to be used. There is no difference in the performance compared to On-Demand instances and is usually cheaper than On-demand instances as there is no guarantee provided over the availability. The user can choose a start time and end time for the instances or can make a persistent request(no end time specified) for this service. This service is preferable for computing needs which are not tied to any deadlines, computing needs are large and the interruption of service is acceptable.

**What Are The Main Features Of Classic Load Balancer In Ec2 ?**

**Some of the main features of Classic Load Balancer (CLB) in Amazon EC2 are as follows:**

**Health Check:** Based on the result of Health Check, Classic Load Balancer can decide to route the traffic. If any instance has unhealthy results, CLB will not route the traffic to that instance.

**Security:** We can create security groups for CLB in Virtual Private Cloud (VPC). With these features, it is easy to implement secure load balancing within a network.

**High Availability:** With CLB, we can distribute traffic among EC2 instances in single or multiple Availability Zones. This helps in providing very high scale of availability for the incoming traffic.

**Sticky Sessions:** CLB also supports sticky session by using cookies. The sticky sessions make sure that the traffic from a user is always routed to the same instance so that user gets seamless experience.

**IPv6:** CLB also support Internet Protocol version 6.

**Operational Monitoring:** We can also perform operational monitoring CLB and collect statistics on request count, latency etc. These metrics can be monitored in CloudWatch.

**What Are The Main Features Of Application Load Balancer (alb) In Amazon Ec2 ?**

**Main features of Application Load Balancer (ALB) are as follows:**

**Content-Based Routing:** In ALB, we can make use of content in the request to decide the routing of a request to a specific service.

**HTTP/2:** ALB supports the new version of HTTP protocol. In this protocol, we can send multiple requests on same connection. It also supports TLS and header compression.

**WebSockets:** ALB supports WebSockets in EC2. With WebSockets, a server can exchange real-time messages with the end-users.

**Layer-7 Load Balancing:** ALB can also load balance HTTP/HTTPS application with layer-7 specific features.

**Delete Protection:** ALB also provides Delete Protection option by which we can prevent it from getting deleted by mistake.

**Containerized Application Support:** We can use ALB to load balance multiple containers across multiple ports on same EC2 instance.

**What Is A Placement Group In Ec2 ?**

AWS provides an option of creating a Placement Group in EC2 to logically group the instances within as single Availability Zone.

We get the benefits of low network latency and high network throughput by using a Placement Group.

Placement Group is a free option as of now. When we stop an instance, it will run in same Placement Group in restart at a later point of time.

The biggest limitation of Placement Group is that we cannot add Instances from multiple availability zones to one Placement Group.

**What Types Of Issues Do You Face While Connecting To An Ec2 Instance ?**

**Some of the possible connection issues with EC2 instance are:**

Connection time out

Permission denied due to host key not found

Unprotected private key file

Permission denied due to user key not recognized by server

No supported authentication method available

Server refused the key AWS Video Training