AWS cloud

To begin, Amazon Web Services (AWS) is the whole version of AWS. It's a flexible, scalable, easy-to-use, and cost-effective cloud computing platform.
Amazon Web Services (AWS) is an easy-to-use computing platform with a lot of features. The platform is built using infrastructure as a service (IaaS), platform as a service (PaaS), and packaged software as a service (SaaS).

AWS offers a pay-as-you-go pricing mechanism for over 200 cloud services. Customers of Amazon Web Services just pay for the services they use, for as long as they use them, with no long-term contracts or costly licensing. Utility bills, such as water and electricity, are similar to how you pay for AWS. Customer just pays for the services he uses, with no hidden fees or penalties if he decides to stop using them.

As a worldwide public cloud provider, Amazon Web Services requires a global infrastructure network to run and maintain its numerous increasing cloud services that support clients all over the globe. The AWS Global Infrastructure is made up of the following components:
- Availability Zones
- RegionsEdge
- LocationsRegional
- Edge Caches

With over 200 fully featured services accessible from data centers around the world, AWS Global Cloud Infrastructure has to be the most safe, comprehensive, and trustworthy cloud platform available. Whether you need to deploy your application workloads globally in a single click or build and deploy bespoke apps with single-digit millisecond latency closer to your end-users, AWS can assist.

With millions of active customers and tens of thousands of partners, AWS has the world's biggest and most vibrant ecosystem. Customers from nearly every industry and of every size, including start-ups, enterprises, and government agencies, are executing every potential use case on AWS.

Cloud security is a significant priority for AWS. You'll have access to a data center and network architecture intended to meet the demands of the most security-conscious enterprises as an AWS client. Cloud security is comparable to on-premises data center security, but without the costs of buildings and hardware upkeep. When you use the cloud, you don't have to worry about managing physical servers or storage devices. Instead, you use software-based security tools to monitor and protect the flow of data into and out of your cloud resources. AWS Cloud Compliance, on the other hand, assists you in understanding AWS's thorough protocols for preserving cloud security and data protection. When solutions are built on top of AWS Cloud infrastructure, compliance responsibilities will be shared.AWS Compliance enablers expand standard programs by linking governance-focused, audit-friendly service features to the necessary compliance or audit criteria. This may be used to create and manage an AWS security control environment.

Create an Amazon VPC by following these steps:

- Sign in to the AWS Management Console, and open the Amazon VPC console at https://console.aws.amazon.com/vpc/
- Create a new Amazon VPC by using the Amazon Virtual Private Cloud wizard:
    a) In the navigation list, choose VPC Dashboard.
    b) Choose Start VPC Wizard.
    c) In the Amazon VPC wizard, choose VPC with Public and Private Subnets, and then choose Next.
    d) On the VPC with Public and Private Subnets page, keep the default options, and then choose Create VPC.
    e) In the confirmation message that appears, choose Close.
- Confirm that there are two subnets in your Amazon VPC, a public subnet and a private subnet. These subnets are created automatically.
    a) In the navigation list, choose Subnets.
    b) In the list of subnets, find the two subnets that are in your Amazon VPC.

Amazon Elastic Compute Cloud (Amazon EC2) delivers scalable computing capability in the Amazon Web Services (AWS) Cloud. Using Amazon EC2 decreases the upfront hardware cost required, allowing you to design and deploy programs faster. You may construct as many or as few virtual servers as you need, set security and networking, and manage storage using Amazon EC2. You may use Amazon EC2 to scale up or down in response to changes in demand or popularity spikes, which eliminates the need to anticipate traffic. Lambda is a computational service that lets you run code without having to set up or operate a server. Lambda controls all elements of your code execution on a high-availability computing infrastructure, including server and operating system maintenance, capacity provisioning and automatic scaling, code monitoring, and logging. Lambda may be used to run code for nearly any application or backend service. It's as simple as writing your code in one of Lambda's supported languages. AWS Elastic Beanstalk makes it easier for developers to install and maintain applications in the AWS Cloud. Developers simply upload their code, and Elastic Beanstalk handles the rest, including capacity provisioning, load balancing, auto-scaling, and monitoring application health.Those who want to deploy and manage their apps in the AWS Cloud in less than one hour. You don't need any prior experience with cloud computing to get started. AWS Elastic Beanstalk supports web applications developed in Java,.NET, PHP, Node.js, Python, Ruby, Go, and Docker. AmazonEBS provides high-availability block-level storage volumes for Amazon Elastic Compute Cloud (EC2) instances. It stores data to a filesystem that is retained when the EC2 instance is shut down. Amazon EFS is a scalable file storage system that is also EC2-friendly. It may be used as a shared datasource by any application or activity that runs on several instances. You may set up instances to use an EFS file system to mount a file system. Finally, Amazon S3 is an object storage service that may be used to store enormous volumes of backups or user files. Unlike EBS and EFS, S3 isn't limited to EC2. Files stored in an S3 bucket can be accessed programmatically or directly using services like AWS CloudFront. Many websites use AWS CloudFront to store their content and media assets so that they may be delivered promptly.

So, which of Amazon EBS, Amazon EFS, and Amazon S3 should you choose? That relies on the benefits you're looking for as well as the use case of your task. Amazon RDS is appropriate for a wide range of applications because to its scalability, security, and availability. Here are a few examples of possible applications:

Internet retailing is a type of retailing that takes place through the internet. In big databases, these applications maintain track of stocks, transactions, and pricing.

RDS for online and mobile gaming is beneficial to both developers and customers who wish to keep their apps up to date. Travel applications are available. Applications like Airbnb employ RDS' capabilities to automate database replication and eliminate time-consuming database administration tasks. Mobile apps such as Airbnb employ RDS' expandable storage capacity.

Data-streaming applications. Netflix, for example, relies on Amazon RDS' storage scalability and availability on a daily basis to fulfill high demand. Apps that deal with money. Amazon DynamoDB is a fully managed NoSQL database service that scales seamlessly and performs consistently. Because DynamoDB offloads the administrative needs of establishing and administering a distributed database, you don't have to worry about hardware provisioning, setup and configuration, replication, software patching, or cluster scaling. DynamoDB also offers encryption at rest, which cuts down on the time and effort needed to protect sensitive information. Amazon Redshift is a fully managed petabyte-scale data warehousing solution that is hosted in the cloud. You may start with a few hundred gigabytes of data and expand to a petabyte or more. By evaluating your data, you may acquire new insights for your organization and customers. Aurora (Amazon Aurora) is a relational database engine that supports MySQL and PostgreSQL and is completely managed. As you may already know, MySQL and PostgreSQL combine the speed and dependability of high-end commercial databases with the simplicity and cost-effectiveness of open-source databases. You may use the same code, tools, and apps for Aurora that you do for your existing MySQL and PostgreSQL databases. Aurora can provide up to five times the speed of MySQL and up to three times the throughput of PostgreSQL in specified workloads without requiring changes to most of your current applications.

AWS Cloud architectural principles
Framework Overview:
The AWS Well-Architected Framework explains important concepts, design principles, and architectural best practices for creating and running cloud workloads. Learn how well your design matches with cloud best practices and get advice on how to enhance it by completing a few basic questions.

Operational Excellence Pillar:
The operational excellence pillar is concerned with the operation and monitoring of systems, as well as the continuous improvement of processes and procedures. Automating changes, reacting to events, and setting standards to govern everyday operations are all important subjects.

Security Pillar:
The security pillar focuses on protecting information and systems. Key topics include confidentiality and integrity of data, managing user permissions, and establishing controls to detect security events.

Reliability Pillar:
The reliability pillar is concerned with workloads fulfilling their intended duties and how to swiftly recover from failure in order to satisfy demands. Distributed system design, recovery planning, and adjusting to changing needs are all important themes.

Performance Efficiency Pillar:
The performance efficiency pillar focuses on the distribution of IT and computing resources in a systematic and efficient manner. Selecting resource types and sizes that are optimum for workload requirements, monitoring performance, and preserving efficiency as business demands change are all important themes to consider.

Finally, Elastic Load Balancing distributes incoming traffic to several destinations across one or more Availability Zones, such as EC2 instances, containers, and IP addresses. It monitors the health of the targets it has recorded and only delivers traffic to those who are in excellent form. You can scale your load balancer as your incoming traffic varies using Elastic Load Balancing. It can automatically scale to the vast majority of workloads. Amazon CloudWatch analyzes your Amazon Web Services (AWS) resources and AWS apps in real time. CloudWatch may be used to collect and track metrics for your resources and applications. Metrics are variables that can be measured.
Every AWS service you use is displayed on the CloudWatch home page right away. You may also create custom dashboards to present statistics and unique groupings of metrics for your own apps.