MODULE 3

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**Amazon Simple Storage Service (Amazon S3):**A service provided by AWS that stores data for users in the cloud.

**Amazon Elastic Compute Cloud (Amazon EC2):** A web service that provides secure, resizable compute capacity in the cloud. Think of it as renting a computer in the cloud.

**Amazon Elastic Block Store (Amazon EBS):** Storage for specific EC2 instances. Think of it as the storage drive for your EC2 instance.

**Amazon Relational Database Service (Amazon RDS):**This lets developers create and manage relational databases in the cloud. Think of a relational database as a set of data with one-to-one relationships. For example, a database of transactions in a department store would match every customer with their purchases. Amazon RDS lets developers track large amounts of this data, and organize and search through it easily. Relational databases are equipped with nonprocedural structured query language (SQL) that simplifies interactions with the database.

**Amazon DynamoDB:** The AWS nonrelational database service. Data is stored in key-value pairs.

**Amazon Lambda:** Lambda lets you run code without provisioning or managing servers. You pay only for the compute time you consume—there is no charge when your code is not running. With Lambda, you can run code for virtually any type of application or backend service—all with zero administration. Upload your code, and Lambda takes care of everything required to run and scales your code with high availability. You can set up your code to automatically start from other AWS services or call it directly from any web or mobile app.

**Amazon Virtual Private Cloud (Amazon VPC):** A service that provides a virtual network that is dedicated to your AWS account. It is logically isolated from other virtual networks in the AWS Cloud. All your AWS services can be launched from a VPC. It is useful for protecting your data and managing who can access your network.

**AWS Identity and Access Management (IAM):** Involves the application of controls to users who need access to computing resources.

**AWS CloudTrail:** Monitors every action that is performed on your AWS account for security purposes.

**Amazon CLoudWatch:** CloudWatch is a monitoring service to monitor your AWS resources and the applications that you run on AWS.

**Amazon Redshift:** The AWS data-warehousing service can store massive amounts of data in a way that makes it fast to query for business intelligence purposes.

**Amazon S3 vs Amazon EBS:**

* Amazon EBS can only be used when attached to an EC2 instance, and Amazon S3 can be accessed on its own.
* Amazon EBS cannot hold as much data as Amazon S3.
* Amazon EBS can only be attached to one EC2 instance, whereas data in an S3 bucket can be accessed by multiple EC2 instances.
* Amazon S3 experiences more delays than Amazon EBS when writing data.

**Amazon RDS vs Amazon Redshift vs DynamoDB:**

* Amazon RDS is the classic relational database that uses SQL Server, Oracle Database, Amazon Aurora, or other similar database systems. Think of this as a gradebook where each student is a row, and they all have the same number of assignments (columns) that they are attached to. Businesses can use code to search for specific data based on the information in the rows and columns. Amazon RDS is useful for companies that store a moderate amount of data that is uniform in structure, meaning each unique ID, like student name, is attached to the same number of data points (grades).
* Amazon Redshift is a relational database like Amazon RDS, but it is specifically made for huge amounts of data. It is a data-warehousing tool that is good for users working with big data.
* DynamoDB is a nonrelational database, meaning that you can’t use traditional systems like SQL Server or Aurora. Each item in the database is stored as a key-value pair or JavaScript Object Notation (JSON). This means that each row could have a different number of columns. The entries do not all have to be matched in the same way. This permits flexibility in processing that works well for blogging, gaming, and advertising.

**CloudTrail vs CloudWatch:**

* CloudTrail monitors all the actions that users have taken in a given AWS account. This means that any time someone uploads data, runs code, creates an EC2 instance, changes an S3 drive type, or any other action that can be done on AWS, CloudTrail will keep a log of it. This is very useful for security reasons so that administrators can know who is using their account and what they are doing. If anything goes wrong or if a security issue arises, CloudTrail will be the best evidence to figure out what happened.
* CloudWatch monitors what all the different services are doing and what resources they are using. If CloudTrail is the people monitor, CloudWatch is the service monitor. CloudWatch is great for making sure that your cloud services are running smoothly and not using more or fewer resources than you expect, which is important for budget tracking. CloudWatch is great for making sure all your different resources are running, which can get tricky if a large company is using hundreds of different machines and drives. Monitors and alarms can be set up through CloudWatch to automatically initiates an alert when a metric hits a specific limit.