AWS SERVICES

what is Amazon Athena

Amazon Athena is a serverless query service that allows you to analyze data stored in Amazon S3 (Simple Storage Service) using standard SQL. With Athena, you can easily run ad-hoc queries and get results within seconds, without the need to set up or manage any infrastructure.

Athena works by using metadata about your data stored in S3 to build a schema, which allows you to query your data using SQL. This metadata can be in the form of partitioning, file format, and data types. You can use Athena to query structured, semi-structured, and unstructured data, including CSV, JSON, ORC, Avro, and Parquet.

Athena integrates with other AWS services, such as AWS Glue, which can help you automate the process of building and maintaining your metadata. You can also use Athena with Amazon QuickSight, AWS's business intelligence service, to visualize your data and gain insights.

Overall, Amazon Athena is a powerful tool that allows you to analyze large amounts of data in S3 quickly and easily, without the need for complex setup or maintenance.

what is Amazon Kinesis

Amazon Kinesis is a fully managed service by AWS that enables you to easily collect, process, and analyze streaming data in real-time. Kinesis is designed to handle large volumes of data, such as application logs, IoT telemetry data, social media feeds, and clickstream data.

Kinesis allows you to ingest streaming data from various sources, including AWS services such as Amazon S3, Amazon DynamoDB, and Amazon CloudWatch, as well as third-party applications and services. You can use Kinesis to process and analyze data as it arrives in real-time, allowing you to quickly respond to new insights and opportunities.

Kinesis provides three core services:

1. Amazon Kinesis Data Streams: which enables real-time streaming data processing by breaking data streams into small, manageable chunks called shards. Kinesis Data Streams can handle terabytes of data per hour from hundreds of thousands of sources.
2. Amazon Kinesis Data Firehose: which allows you to load streaming data into data stores, such as Amazon S3, Amazon Redshift, or Amazon Elasticsearch Service, for further analysis.
3. Amazon Kinesis Data Analytics: which allows you to perform real-time analytics on streaming data using standard SQL.

With Amazon Kinesis, you can build real-time applications, gain real-time insights, and respond quickly to changing conditions or events.

what is Amazon QuickSight

Amazon QuickSight is a cloud-based business intelligence (BI) service provided by Amazon Web Services (AWS). It allows users to create and publish interactive dashboards, reports, and visualizations with rich business analytics capabilities.

QuickSight connects to a wide range of data sources, including AWS data services like Amazon S3, Amazon Redshift, Amazon RDS, Amazon Athena, and Amazon Aurora, as well as third-party data sources such as Salesforce, SQL Server, MySQL, and PostgreSQL. It also offers data preparation capabilities, allowing you to transform and clean your data before analysis.

QuickSight offers a variety of visualization options, including bar charts, line charts, pie charts, scatter plots, and tables. It also offers features such as drill-down and filters, which allow you to interact with your data and explore it in greater detail. QuickSight can be accessed through a web browser or mobile app, and offers features like automatic updates and mobile-friendly designs.

QuickSight offers flexible pricing options, including pay-per-session and per-user pricing, making it accessible to businesses of all sizes. With its ease of use, wide range of data sources, and powerful visualization options, Amazon QuickSight provides a comprehensive solution for businesses looking to gain insights from their data.

explain me Amazon Simple Notification Service (Amazon SNS)

Amazon Simple Notification Service (SNS) is a fully managed messaging service provided by Amazon Web Services (AWS) that enables you to send messages or notifications to a large number of subscribers or endpoints simultaneously.

SNS allows you to send push notifications, SMS, and email messages to subscribers, as well as send messages to other AWS services such as AWS Lambda, Amazon SQS, and HTTP endpoints. SNS supports both pub-sub (publish-subscribe) and point-to-point messaging models, allowing you to choose the appropriate model based on your use case.

SNS provides several features, including:

- Topic-based messaging: SNS uses topics to categorize messages and allows subscribers to receive messages based on their interests or requirements.

- Multi-protocol support: SNS supports multiple messaging protocols including HTTP/S, email, SMS, mobile push notifications (iOS, Android, Amazon Device Messaging), and other protocols using AWS Lambda.
- Message filtering: SNS allows you to filter messages based on attributes such as message content, message metadata, and subscription attributes.
- Message fan-out: SNS allows you to publish a single message to multiple endpoints, enabling you to broadcast messages to multiple subscribers simultaneously.
- Message durability: SNS ensures message durability and availability by replicating messages across multiple availability zones within a region.

SNS is highly scalable and can handle high volumes of messages with low latency. With SNS, you can easily integrate messaging into your applications and systems, allowing you to keep your subscribers up-to-date with important events and notifications.

explain the Amazon Simple Queue Service (Amazon SQS)

Amazon Simple Queue Service (Amazon SQS) is a fully managed message queuing service provided by Amazon Web Services (AWS). It enables you to decouple and scale microservices, distributed systems, and serverless applications, by allowing you to send, store, and receive messages between software components.

Amazon SQS allows you to send, receive, and process messages between software components without worrying about the underlying infrastructure. Amazon SQS offers two types of message queues:

1. Standard queues: which provide a high throughput, low latency, and at-least-once delivery of messages, ensuring that each message is delivered at least once. Standard queues are suitable for many use cases and can handle a large volume of messages.
2. FIFO queues: which provide first-in-first-out delivery of messages, ensuring that messages are processed in the order they are sent. FIFO queues are suitable for applications that require messages to be processed in a specific order and ensure that each message is delivered once and only once.

Amazon SQS provides several features, including:

- Message durability: Amazon SQS ensures that messages are stored redundantly across multiple availability zones within a region, ensuring durability and high availability.
- Message retention: Amazon SQS allows you to control how long messages are retained in a queue, giving you the flexibility to design your application based on your specific requirements.
- Message visibility: Amazon SQS allows you to control the visibility of messages, ensuring that messages are not processed multiple times by different consumers.
- Dead-letter queues: Amazon SQS allows you to set up a dead-letter queue to store messages that cannot be processed, allowing you to troubleshoot and debug your applications.

Amazon SQS is highly scalable and can handle millions of messages per second. With Amazon SQS, you can easily decouple your applications and components, improving reliability and scalability, and reducing dependencies between components.

what is AWS Batch

AWS Batch is a fully managed service provided by Amazon Web Services (AWS) that enables you to run batch computing workloads on the AWS Cloud. It allows you to optimize your batch computing workloads by running them on EC2 instances, enabling you to scale your compute resources based on your specific workload requirements.

AWS Batch manages the underlying infrastructure, automating the process of launching, scheduling, and scaling your batch computing workloads. It integrates with other AWS services, such as Amazon S3, Amazon EC2, and AWS Identity and Access Management (IAM), to provide a seamless experience for running batch workloads.

AWS Batch provides several key features, including:

- Job management: AWS Batch allows you to define and manage your batch computing jobs, including specifying the compute resources required, setting job dependencies, and defining how to handle job failures.
- Scalability: AWS Batch can automatically scale your compute resources based on your workload requirements, enabling you to optimize your resources and reduce costs.
- Flexible scheduling: AWS Batch allows you to schedule jobs based on your specific requirements, including using cron expressions or specifying dependencies between jobs.
- Resource management: AWS Batch provides resource allocation and management capabilities, including managing EC2 instances, monitoring resource utilization, and optimizing resource allocation.

AWS Batch is highly scalable and can handle a wide range of batch computing workloads, including data processing, scientific computing, and machine learning. With AWS Batch, you can easily run batch workloads on the AWS Cloud, optimize resource utilization, and reduce costs.

what is Aws Lambda

AWS Lambda is a fully managed compute service provided by Amazon Web Services (AWS) that allows you to run code without provisioning or managing servers. It is a serverless computing service that lets you execute your code in response to events and automatically manages the underlying compute resources for you.

With AWS Lambda, you can write your code in languages such as Python, Node.js, Java, Go, and C#, and deploy it as a function that can be triggered by events such as changes to data in an Amazon S3 bucket, an API Gateway request, a change to an Amazon DynamoDB table, or a scheduled event.

AWS Lambda provides several key features, including:

- Automatic scaling: AWS Lambda automatically scales your function to handle requests without requiring you to manage servers or infrastructure.
- High availability: AWS Lambda is highly available and ensures that your function is always running, even in the event of a server failure.
- Flexible execution: AWS Lambda allows you to execute your code in response to a wide range of events, including changes to data in an Amazon S3 bucket, an API Gateway request, a change to an Amazon DynamoDB table, or a scheduled event.
- Low cost: AWS Lambda is a cost-effective service, as you only pay for the compute time that you use and there are no upfront costs or minimum fees.
- Integrated with AWS services: AWS Lambda integrates with other AWS services such as Amazon S3, Amazon DynamoDB, Amazon Kinesis, and Amazon API Gateway, allowing you to easily create serverless applications.

AWS Lambda is a powerful service that enables you to create and run serverless applications, allowing you to focus on writing code and delivering value to your users without worrying about server management or infrastructure.