AWS Solution Architect Associate Certification Training – Module 20

20. Amazon Simple Queue Service

Introduction to SQS

Amazon Simple Queue Service (SQS) is a fully managed message queuing service that enables you to decouple and scale microservices, distributed systems, and serverless applications. SQS eliminates the complexity and overhead associated with managing and operating message oriented middleware, and empowers developers to focus on differentiating work. Using SQS, you can send, store, and receive messages between software components at any volume, without losing messages or requiring other services to be available. Get started with SQS in minutes using the AWS console, Command Line Interface or SDK of your choice, and three simple commands.

SQS offers two types of message queues. Standard queues offer maximum throughput, best-effort ordering, and at-least-once delivery. SQS FIFO queues are designed to guarantee that messages are processed exactly once, in the exact order that they are sent.

Benefits

ELIMINATE ADMINISTRATIVE OVERHEAD

AWS manages all ongoing operations and underlying infrastructure needed to provide a highly available and scalable message queuing service. With SQS, there is no upfront cost, no need to acquire, install, and configure messaging software, and no time-consuming build-out and maintenance of supporting infrastructure. SQS queues are dynamically created and scale automatically so you can build and grow applications quickly and efficiently.

RELIABLY DELIVER MESSAGES

Use Amazon SQS to transmit any volume of data, at any level of throughput, without losing messages or requiring other services to be available. SQS lets you decouple application components so that they run and fail independently, increasing the overall fault tolerance of the system. Multiple copies of every message are stored redundantly across multiple availability zones so that they are available whenever needed.

KEEP SENSITIVE DATA SECURE

You can use Amazon SQS to exchange sensitive data between applications using server-side encryption (SSE) to encrypt each message body. Amazon SQS SSE integration with AWS Key Management Service (KMS) allows you to centrally manage the keys that protect SQS messages along with keys that protect your other AWS resources. AWS KMS logs every use of your encryption keys to AWS CloudTrail to help meet your regulatory and compliance needs.

SCALE ELASTICALLY AND COST-EFFECTIVELY

Amazon SQS leverages the AWS cloud to dynamically scale based on demand. SQS scales elastically with your application so you don’t have to worry about capacity planning and pre-provisioning. There is no limit to the number of messages per queue, and standard queues provide nearly unlimited throughput. Costs are based on usage which provides significant cost saving versus the “always-on” model of self-managed messaging middleware.

What Type of Queue Do I Need?

Standard Queue

- Unlimited Throughput - Standard queues support a nearly unlimited number of transactions per second (TPS) per action.
- At-least once delivery - A message is delivered at least once, but occasionally more than one copy of a message is delivered.
- Best-Effort Ordering - Occasionally, messages might be delivered in an order different from which they were sent.

FIFO Queue

- High Throughput - By default, FIFO queues support up to 3,000 messages per second with batching. To request a limit increase, file a support request.
- Exactly-Once Processing – A message is delivered once and remains available until a consumer processes and deletes it. Duplicates aren't introduced into the queue.
- First-In-First-Out Delivery – The order in which messages are sent and received is strictly preserved.