AWS SQS

Topics : AWS
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Amazon Simple Queue Service (SQS) is a fully managed message queuing service provided by Amazon Web Services (AWS). It enables decoupling of the components of a cloud application, allowing them to run independently and scale horizontally.

Here are some key features and concepts related to AWS SQS:

1. **Decoupling Components:**

   - SQS enables the decoupling of components within a distributed system by allowing one component to send a message to a queue, and another component to retrieve and process the message from the queue.

2. **Message Queues:**

   - SQS uses a distributed architecture to provide a scalable and reliable message queue service. Messages are stored in a highly available manner, ensuring durability and reliability.

3. **Queue Types:**

   - **Standard Queues:** Provide at-least-once delivery, where messages might be delivered more than once but are not delivered in a specific order.
   - **FIFO Queues (First-In-First-Out):** Guarantee that messages are processed exactly once and in the order in which they are sent.

4. **Message Retention:**

   - SQS retains messages in a queue for a configurable duration (1 minute to 14 days). After this period, messages are automatically deleted.

5. **Visibility Timeout:**

   - When a consumer retrieves a message from the queue, the message becomes invisible to other consumers for a specified period known as the visibility timeout. This prevents multiple consumers from processing the same message simultaneously.

6. **Scaling:**

   - SQS can handle a virtually unlimited number of messages per second, allowing you to scale your applications seamlessly.

7. **Access Control:**

   - IAM (Identity and Access Management) can be used to control access to SQS queues, allowing you to set fine-grained permissions.

8. **Dead Letter Queues (DLQ):**

   - SQS supports Dead Letter Queues, where messages that cannot be processed successfully after a certain number of attempts are moved to a designated queue for further analysis.

9. **Monitoring and Logging:**

   - SQS integrates with AWS CloudWatch for monitoring. You can set up CloudWatch Alarms to receive notifications based on SQS metrics.

10. **Encryption:**

    - Messages can be encrypted in transit using HTTPS, and at rest using AWS Key Management Service (KMS).

11. **Long Polling:**

    - SQS supports long polling, allowing the server to wait until a message is available in the queue before sending a response, reducing the number of empty responses.

12. **Event-Driven Architecture:**

    - SQS is often used in event-driven architectures, enabling communication between different services and components in a decoupled manner.