Session 1 : How Simple Queue Service Works

Session2 : Important points of SQS and Billing

• SQS is a pull service and SNS is push service
• SQS is a fast,reliable,fully managed message queue service
• it is a webservice that give us access to message queues that store messages waiting to be processed
• It offers a reliable,highly scalable hosted queue for storing messages between servers
• It allows the decoupling of application components such that a failure in one components does not cause a bigger problem to application functionality(like a coupled app)
• Using SQS,we no longer need a highly available message cluster or the burden of running it
• We can delete all the messages in an SQS queue without deleting the SQS queue itself
• We can use application on ec2 instances to read and process the SQS queue messages
• We can use autocaling to scale ec2 fleet processing the SQS messages,as the queue size increases
• These applications on ec2 instances can process SQS messages/jobs then post the results to other Queues to other AWS services

AWS Queue Types :

1.Standard Queue

• High(unlimited) throughput
• Atleast one delivery
• Duplicacy is possible
• Best effort ordering

2.FIFO Queue

• Limited throughput(300 TPS)
• Exactly one processing
• Duplicacy not possible
• Strict ordering -First in First out
• FIFO queues are limited to 300 transactions per second(TPS),but have all the capabilities of standard queue

SQS Pricing :

• The first 1 million monthly requests are free.After that pricing is according to regions EX : In mumbai region Standard Queue-$0.40/million request.....FIFO Queue : $0.50/million request

How Amazon SQS Charges :

• API action : Every Amazon SQS actions count as a request
• FIFO Request : API actions for sending,receiving,deleting and changing visibility of messages from FIFO Queues are charged at FIFO rates
• Contents of Request : A single request can have from 1 to 10 messages,upto a max total payload of 256KB
• Size of Payload : Each 64KB chunk of a payload is billed as 1 request(EX : API action with a 256KB payload is billed as 1 request)
• Interaction with Amazon S3
• Interaction with AWS KMS

Session 3 : Receive Message wait Time,Delivery Delay,Visibility timeout and Dead letter Queue

Short Polling :

• A request is returned immediately even if the queue is empty
▫ It does not wait for messages to appear in the queue
▫ It queries only a subset of the available servers for messages(based on weighted random distribution)
▫ Default by SQS
▫ Receive message time is set to 0
• More requets are used which implies higher cost

Long Polling :

• Is preferred to regular/short polling.It uses fewer requests and reduce cost by :
▫ Eliminating false empty responses by querying all the servers
▫ Reduce the number of empty respones by allowing amazon SQS to wait untill a message is available in the queue before sending a response unless the connection timeout (20 sec)
▫ Receive message time is set to a non-zero value(max 20 sec)
▫ Polling is same for both pollings

SQS-Retention Period :

• SQS messages can remain in the queue for upto 14 days(SQS retention period)
• Range is 1 min to 14 days(default is 4 days)
• Once the max retention period of a message is reached,it will be deleted automatically from the queue
• Messages can be sent to the queue and read from the queue simultaneously
• SQS can be used with DynamoDB,EC2,ECS,Redshift,RDS,Lambda,S3 to make distributed/-decoupled applications
• We can have multiple queues with diff priorities

SQS-Visibility Timeout :

• Is the duration of time a message is locked for read by other servers
• Max is 12 hours and default is 30 sec
• A server that read a message to process, it can change the message visibility timeout if it needs more time to process the message
• After a message is read,there are the following possibilities :
▫ An ACK is received that a message is processed,so it must be deleted from the queue to avoid duplicates
▫ If a fail is received or the visibility timeout expires,the message will then be unlocked for read,such that it can be read and processed by another servers

Delivery Delay :

• AWS SQS provides delivery delay options to postpone the delivery of new messages to a queue.If delivery delay is defined for a queue,any new messages will not be visible to the server for the duration of delay.The default(min) delay for a queue is 0 sec.The max is 15 Min

Receive Message Wait Time :

• The default time is 0 Sec.This is max amount of time that a long polling receive call will wait for a message to become available before returning an empty reponse(Max value is 20 Sec)

Dead Letter Queue :

• The main task of a dead letter queue is handling message failure.A dead letter queue lets us set aside and isolate messages that can't be processed correctly to determine why their processing didn't succeed
• Dont use a dead letter queue with a FIFO queue,if we don't want to break the exact order of

messages or operations
• DLQ must be of the same type as the source queue(standard or FIFO)

LAB :

Session 4 : SQS Queue Triggers on Lambda Function