AWS Certification – Application Services – Cheat Sheet

SQS

- extremely scalable queue service and potentially handles millions of messages
- helps build fault tolerant, distributed loosely coupled applications
- stores copies of the messages on multiple servers for redundancy and high availability
- guarantees At-Least-Once Delivery, but does not guarantee Exact One Time Delivery which might result in duplicate messages (Not true anymore with the introduction of FIFO queues)
- does not maintain or guarantee message order, and if needed sequencing information needs to be added to the message itself (Not true anymore with the introduction of FIFO queues)
- supports multiple readers and writers interacting with the same queue as the same time
- holds message for 4 days, by default, and can be changed from 1 min – 14 days after which the message is deleted
- message needs to be explicitly deleted by the consumer once processed
- allows send, receive and delete batching which helps club up to 10 messages in a single batch while charging price for

a single message

- handles visibility of the message to multiple consumers using Visibility Timeout, where the message once read by a consumer is not visible to the other consumers till the timeout occurs
- can handle load and performance requirements by scaling the worker instances as the demand changes (Job Observer pattern)
- message sample allowing short and long polling
  - returns immediately vs waits for fixed time for e.g. 20 secs
  - might not return all messages as it samples a subset of servers vs returns all available messages
  - repetitive vs helps save cost with long connection
- supports delay queues to make messages available after a certain delay, can you used to differentiate from priority queues
- supports dead letter queues, to redirect messages which failed to process after certain attempts instead of being processed repeatedly
- Design Patterns
  - Job Observer Pattern can help coordinate number of EC2 instances with number of job requests (Queue Size) automatically thus Improving cost effectiveness and performance
  - Priority Queue Pattern can be used to setup different queues with different handling either by delayed queues or low scaling capacity for handling messages

in lower priority queues

SNS

- delivery or sending of messages to subscribing endpoints or clients
- publisher-subscriber model
- Producers and Consumers communicate asynchronously with subscribers by producing and sending a message to a topic
- supports Email (plain or JSON), HTTP/HTTPS, SMS, SQS
- supports Mobile Push Notifications to push notifications directly to mobile devices with services like Amazon Device Messaging (ADM), Apple Push Notification Service (APNS), Google Cloud Messaging (GCM) etc. supported
- order is not guaranteed and No recall available
- integrated with Lambda to invoke functions on notifications
- for Email notifications, use SNS or SES directly, SQS does not work

SWF

- orchestration service to coordinate work across distributed components
- helps define tasks, stores, assigns tasks to workers, define logic, tracks and monitors the task and maintains workflow state in a durable fashion
- helps define tasks which can be executed on AWS cloud or on-premises
- helps coordinating tasks across the application which

involves managing intertask dependencies, scheduling, and concurrency in accordance with the logical flow of the application
- supports built-in retries, timeouts and logging
- supports manual tasks
- Characteristics
  - deliver exactly once
  - uses long polling, which reduces number of polls without results
  - Visibility of task state via API
  - Timers, signals, markers, child workflows
  - supports versioning
  - keeps workflow history for a user-specified time
- AWS SWF vs AWS SQS
  - task-oriented vs message-oriented
  - track of all tasks and events vs needs custom handling

SES

- highly scalable and cost-effective email service
- uses content filtering technologies to scan outgoing emails to check standards and email content for spam and malware
- supports full fledged emails to be sent as compared to SNS where only the message is sent in Email
- ideal for sending bulk emails at scale
- guarantees first hop
- eliminates the need to support custom software or applications to do heavy lifting of email transport