SWF – An application service

Application Services

Step Functions

SWF

API Gateway

Elastic Transcoder

Amazon Simple Workflow

Amazon SWF   decider   worker

SWF (Simple Workflow Service)

SWF is a fully managed "work flow" service by AWS. Work flows allows an architect/developer to implement distributed, asynchronous applications as work flows.

What is a work flow?

A work flow coordinate and manages the execution of activities that can be run asynchronously across multiple computing devices.

- **Tasks** are what interacts with the "workers" that are of a work flow

  - **Activity** task - Tells the worker to be form a function

  - **Decision** task - Tells the decider the state of the work execution which allows the decider to determine the next activity to be performed

https://aws.amazon.com/swf/

SWF (Simple Workflow Service)

Amazon Simple Workflow Service Feature:

❖ Distributed
❖ Can Scale up or down depending on the task
❖ Works with on-premises applications or applications on the cloud
❖ A workflow can consist of human events
❖ Workflows can last up to 1 year
❖ Guarantees order of execution
❖ task oriented.
❖ task is not duplicated.
❖ SWF actors
    ❖ starters (example ecom website);
    ❖ deciders (control the flow like if then else);
    ❖ activity workers (carry out activity task. could be human)

Amazon Simple Workflow Service: Domains

❖ A domain is used to help determine the scope of workflows
❖ Multiple work flows can live inside of a domain
❖ Workflows cannot interact with workflows in other domains

SWF (Simple Workflow Service)

Amazon Simple Workflow: Workers & Deciders

- ❖ Activity worker - Process that performs an activity that is pat of the workflow
- ❖ Activity workers poll SWF for new tasks that they need to perform
- ❖ After receiving the task, the activity worker will process the task however it is instructed to do so, and then report back to SWF
- ❖ Workers can consist of a server (coding being executed) on EC2 or on-premises

Amazon Simple Workflow Service: Tasks

Activity Task:

- ❖ A task assigned to a worker
  Example: Encoding videos or checking inventory

Decision Task

- ❖ Tells the decider that the state of the workflow execution has changed
- ❖ Allows the decider to determine what the next activity is
- ❖ Decision tasks happen whenever the state of the workflow changes (task completed)

SWF vs SQS

❖ Both are used to create distributed systems

❖ Both allow each task/component to scale independently

❖ SQS uses a "best effort" messaging order and could have duplicates

❖ SWF guarantees execution order and uses deciders for next instructions

❖ SWF can have a human task as part of the workflow

❖ SQS messages live up to 14 days

❖ SWF workflows or task executions can last up to 1 year

❖ SWF allows for synchronous and asynchronous distributed processing