App Service

Amazon Simple Queue Service

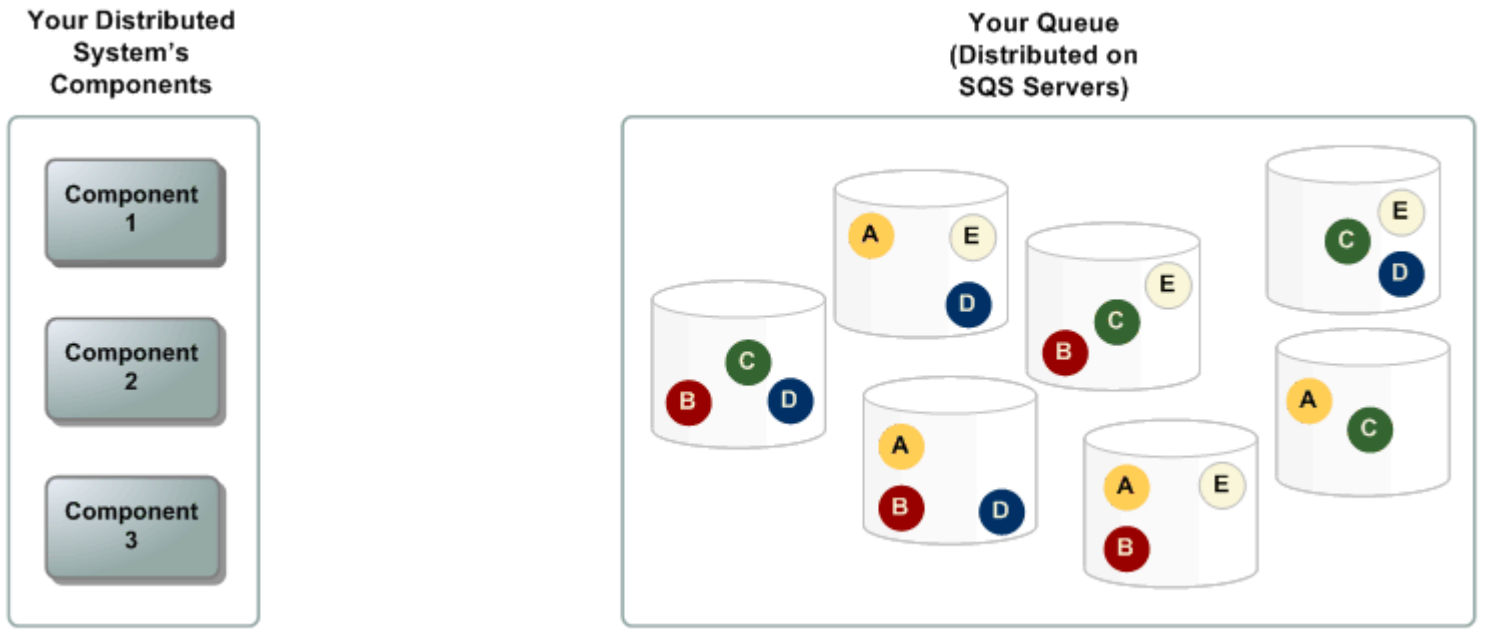
- Amazon Simple Queue Service (Amazon SQS) offers a reliable, highly-scalable hosted queue for storing messages as they travel between applications or microservices.
- It moves data between distributed application components and helps you decouple these components.
- Decoupling the components of an application – You have a queue of work items and want to track the successful completion of each item independently. Amazon SQS tracks the ACK/FAIL results, so the application does not have to maintain a persistent checkpoint or cursor. After a configured visibility timeout, Amazon SQS deletes acknowledged messages and redelivers failed messages.
- Configuring individual message delay – You have a job queue and you need to schedule individual jobs with a delay. With standard queues, you can configure individual messages to have a delay of up to 15 minutes.
- Dynamically increasing concurrency or throughput at read time – You have a work queue and want to add more consumers until the backlog is cleared. Amazon SQS requires no pre-provisioning.
- Scaling transparently – You buffer requests and the load changes as a result of occasional load spikes or the natural growth of your business. Because Amazon SQS can process each buffered request independently, Amazon SQS can scale transparently to handle the load without any provisioning instructions from you.

Amazon Simple Queue Service

- Redundant infrastructure – Standard queues support at-least-once message delivery,
- while FIFO queues support exactly-once message processing.
- Amazon SQS provides highly-concurrent access to messages and high availability for producing and consuming messages.
- Multiple producers and consumers – Multiple parts of your system can send or receive messages at the same time. Amazon SQS locks the message during processing, keeping other parts of your system from processing the message simultaneously.
- Configurable settings per queue – All of your queues don't have to be exactly alike.
- Variable message size – Your messages can be up to 262,144 bytes (256 KB) in size.
- You can store the contents of larger messages using the Amazon Simple Storage Service (Amazon S3)
- Access control – You control who can send messages to a queue, and who can receive messages from a queue.
- Delay queues – You can set a default delay on a queue, so that delivery of all enqueued messages is postponed for the specified duration.
- PCI compliance – Amazon SQS supports the processing, storage, and transmission of credit card data by a merchant or service provider.
- HIPAA compliance – AWS has expanded its HIPAA compliance program to include Amazon SQS as HIPAA Eligible

Architecture of Amazon SQS

- The components of your distributed system
- Queues
- Messages in the queues



Amazon Simple Notification Service (SNS)

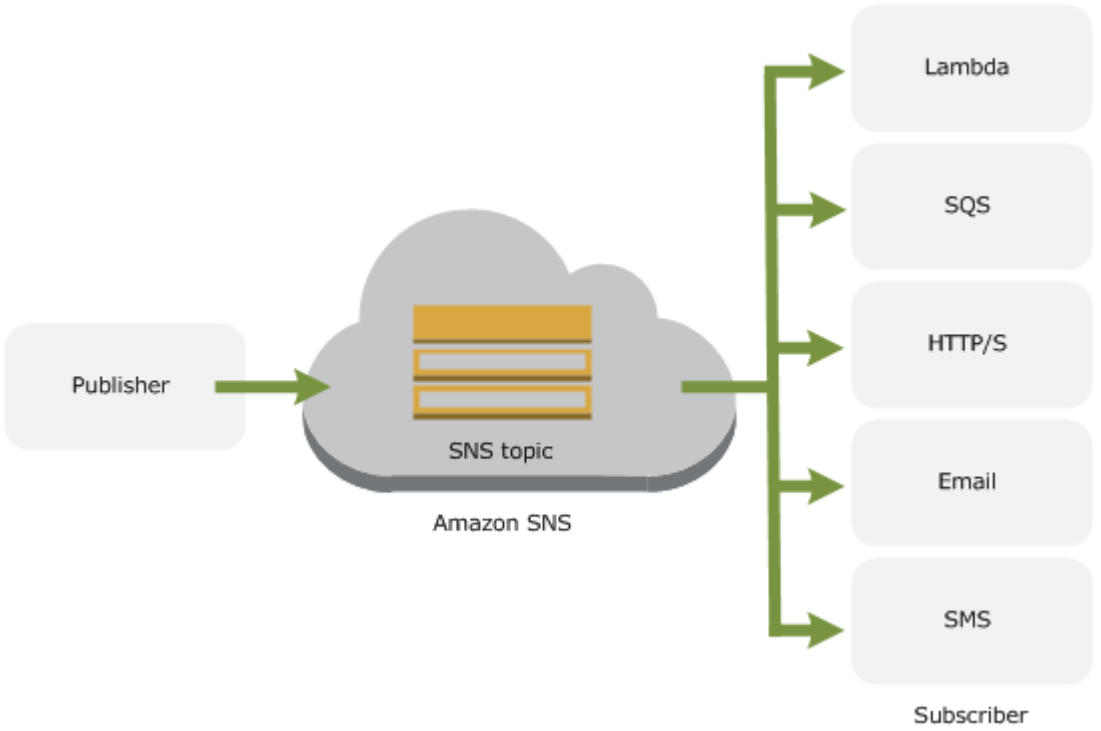
- Amazon Simple Notification Service (SNS) is a flexible, fully managed pub/sub messaging and mobile notifications service for coordinating the delivery of messages to subscribing endpoints and clients.
- With SNS you can fan-out messages to a large number of subscribers, including distributed systems and services, and mobile devices.
- It is easy to set up, operate, and reliably send notifications to all your endpoints – at any scale.
- You can get started using SNS in a matter of minutes using the AWS Management Console, AWS Command Line Interface, or using the AWS SDK with just three simple APIs.
- SNS eliminates the complexity and overhead associated with managing and operating dedicated messaging software and infrastructure.

Amazon Simple Notification Service (SNS)

- A web service that coordinates and manages the delivery or sending of messages to subscribing endpoints or clients.
- In Amazon SNS, there are two types of clients—publishers and subscribers—also referred to as producers and consumers.
- Publishers communicate asynchronously with subscribers by producing and sending a message to a topic.
- Subscribers (i.e., web servers, email addresses, Amazon SQS queues, AWS Lambda functions) consume or receive the message or notification over one of the supported protocols (i.e., Amazon SQS, HTTP/S, email, SMS, Lambda) when they are subscribed to the topic.

Amazon Simple Notification Service (SNS)

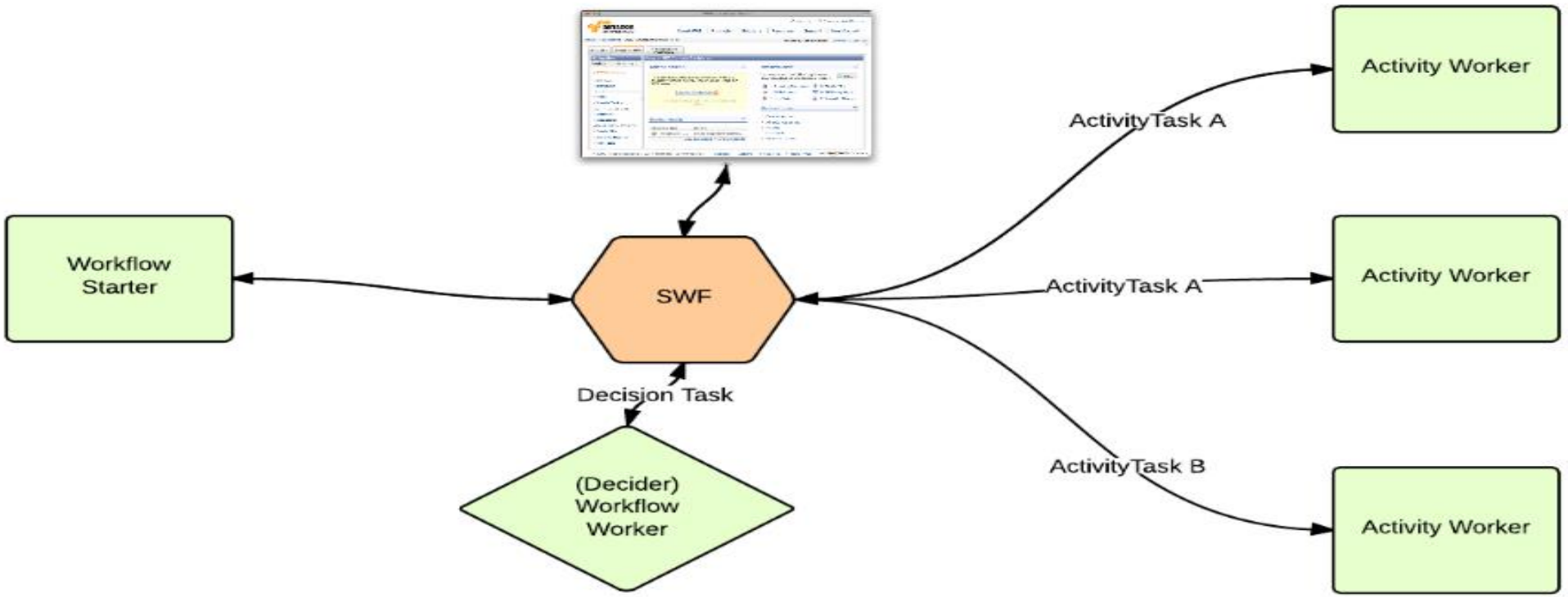
- Fanout The "fanout" scenario is when an Amazon SNS message is sent to a topic and then replicated and pushed to multiple Amazon SQS queues, HTTP endpoints, or email addresses.
- Push Email and Text Messaging
- Mobile Push Notifications



Amazon Simple Workflow Service

- The Amazon Simple Workflow Service (Amazon SWF) makes it easy to build applications that coordinate work across distributed components.
- In Amazon SWF, a task represents a logical unit of work that is performed by a component of your application.
- Coordinating tasks across the application involves managing intertask dependencies, scheduling, and concurrency in accordance with the logical flow of the application.
- Amazon SWF gives you full control over implementing tasks and coordinating them without worrying about underlying complexities such as tracking their progress and maintaining their state.
- Implement workers to perform tasks. These workers can run either on cloud infrastructure, such as Amazon Elastic Compute Cloud (Amazon EC2), or on your own premises.

AWS SWF



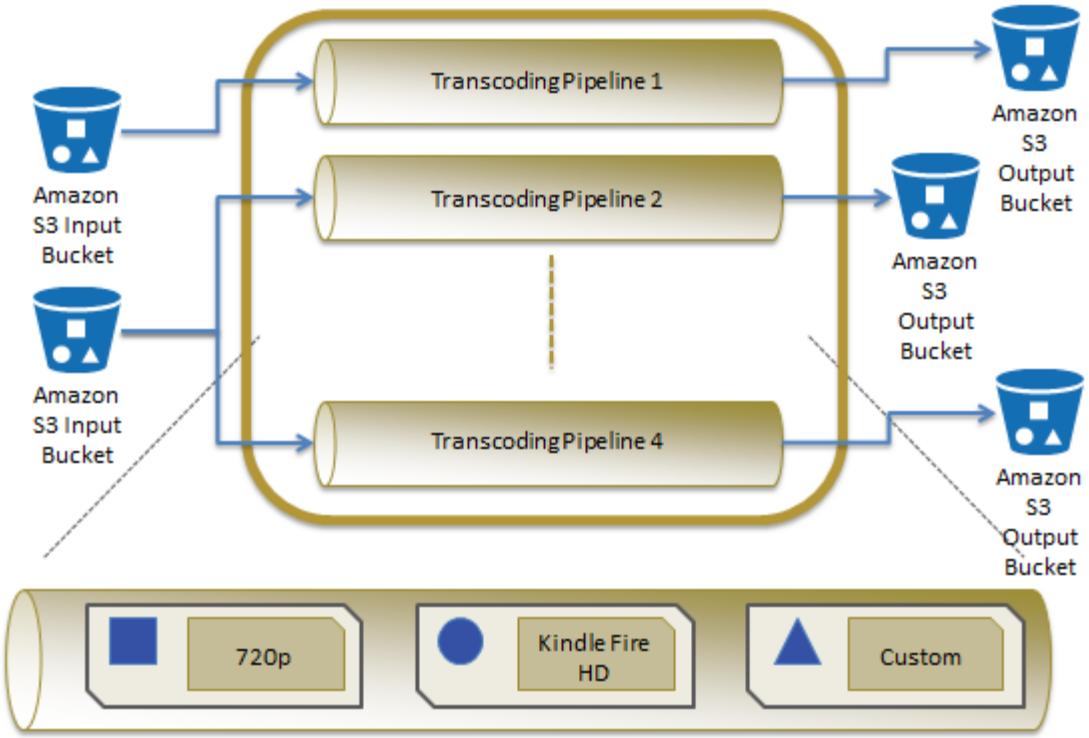
Workflow Execution

- Write activity workers that implement the processing steps in your workflow.
- Write a decider to implement the coordination logic of your workflow.
- Register your activities and workflow with Amazon SWF.
- Start your activity workers and decider.
- Start one or more executions of your workflow.
- View workflow executions using the AWS Management Console.
- You can filter and view complete details of running as well as completed executions.

Amazon Elastic Transcoder

- Amazon Elastic Transcoder is media transcoding in the cloud.
- It is designed to be a highly scalable, easy to use and a cost effective way for developers and businesses to convert (or “transcode”) media files from their source format into versions that will playback on devices like smartphones, tablets and PCs.
- Jobs do the work of transcoding. Each job converts one file into up to 30 formats.
- Pipelines are queues that manage your transcoding jobs. When you create a job, you specify which pipeline you want to add the job to.
- If a pipeline already contains jobs when you create a new job, Elastic Transcoder queues the newest job and begins processing it as soon as resources are available for that pipeline.
- Presets are templates that contain most of the settings for transcoding media files from one format to another.
- Notifications let you optionally configure Elastic Transcoder and Amazon Simple Notification Service to keep you apprised of the status of a job.

Amazon Elastic Transcoder



Amazon Kinesis Streams

- Use Amazon Kinesis Streams to collect and process large streams of data records in real time.
- You'll create data-processing applications, known as Amazon Kinesis Streams applications.
- A typical Amazon Kinesis Streams application reads data from an Kinesis stream as data records.
- These applications can use the Kinesis Client Library, and they can run on Amazon EC2 instances.
- The processed records can be sent to dashboards, used to generate alerts, dynamically change pricing and advertising strategies, or send data to a variety of other AWS services.
- You can use Kinesis Streams for rapid and continuous data intake and aggregation.
- The type of data used includes IT infrastructure log data, application logs, social media, market data feeds, and web clickstream data.

Amazon Kinesis Streams