

Application Integration

Application integration is the process of letting two independent application to communicate and work with each other, commonly facilitated by an intermediate system

Cloud workloads encourages systems and services to be loosely coupled and so AWS has many service for the specific purpose of application integration.

The most common system or design patterns utilized for application integration generally are

Queueing

Streaming

Pub/Sub

api gateway

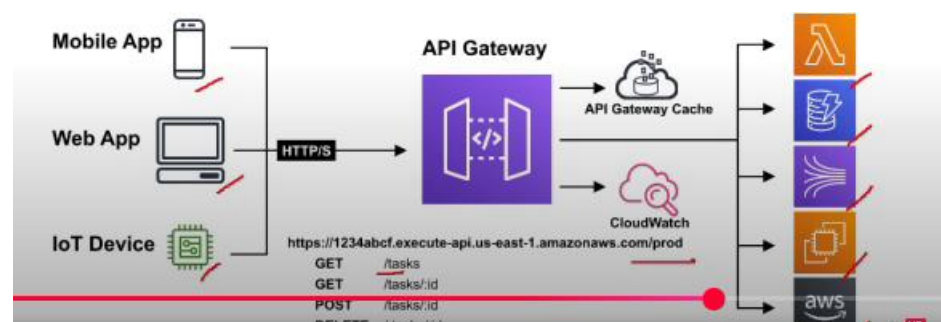
state machine

event bus

API GateWay

An API gateway is a program that sits between a single-entry point and multiple backends. API gateway allows for throttling logging routing logic or formatting of the request and response.

Amazon API gateway is a solution for creating secure APIs in cloud env at any scale



State Machine

What is a state machine?

A state machine is an abstract model which decides how one state move to another based on a series of conditions. Think of state machine like a flow chart.

What is AWS step function?

Coordinate multiple AWS services into a serverless Workflow

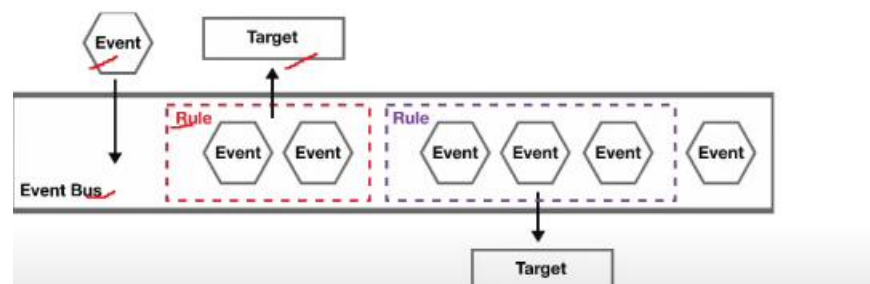
A graphical console to visualize the components of your application as a series of steps

Automatically triggers and tracks each step and retries when there are errors so your application executes in order and as expected every time.

Logs the state of each step so when things go wrong you can diagnose and debug problems quickly

What is a Event Bus?

An event bus receives events from a source and routes events to a target based on rules



Event Bridge is a serverless event bus service that is used for application integration by streaming real time data to your application. Event bridge was formerly called Amazon CloudWatch events.

Application Integration Services

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Simple Notification Service (SNS) - a **pub-sub messaging system**. Sends notifications via various formats such as Plain-text **Email**, HTTP/s (**webhooks**) SMS (**text messages**), **SQS** and **Lambda**. Push messages which then are sent to subscribers



Simple Queue Service (SQS) is a **queueing messaging service**. Send events to a queue. Other applications pull the queue for messages. Commonly used for background jobs.



Step Functions is a **state machine service**. It coordinate multiple AWS services into serverless workflows. Easily share data among Lambdas. Have a group of lambdas wait for each other. Create logical steps. Also works with Fargate Tasks.



EventBridge (CloudWatch Events) is a **serverless event bus** that makes it easy to connect applications together from your own application, third-party services and AWS services.



Kinesis is a **real-time streaming data service**. Create **Producers** which send data to a stream. **Multiple Consumers** can consume data within a stream. Use for real-time analytics, click streams, ingesting data from a fleet of IOT Devices



Amazon MQ is a **managed message broker service** that uses **Apache ActiveMQ** 



Managed Kafka Service (MSK) a **fully managed Apache Kafka service**. Kafka is an open-source platform for building real-time streaming data pipelines and applications. Similar to Kinesis but more robust



API Gateway is a fully-managed service for developers to create, publish, maintain, monitor, and secure APIs. You can create API endpoints and route them to AWS services.



AppSync is a **fully managed GraphQL service**. GraphQL is an open-source agnostic query adaptor that allows you to query data from many different data sources.

