AWS Messaging Framework

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Motivation

- Cloud-first, or at least cloud-enabled, is a future-state direction for most new applications

- Various cloud-based applications need to communicate with each other when interesting “events” occur

- AWS-native services can be considered to facilitate interapp (and maybe interprocess) communication

Messaging

- Messaging is the standard way of communicating between different applications
- Messaging is asynchronous in nature
  - Applications do not need to be blocked while waiting for a response
- Queues provide point-to-point communication between two apps
  - Two queues can be used to implement request/response
- Topics provide broadcast capabilities between one publisher and many consumers

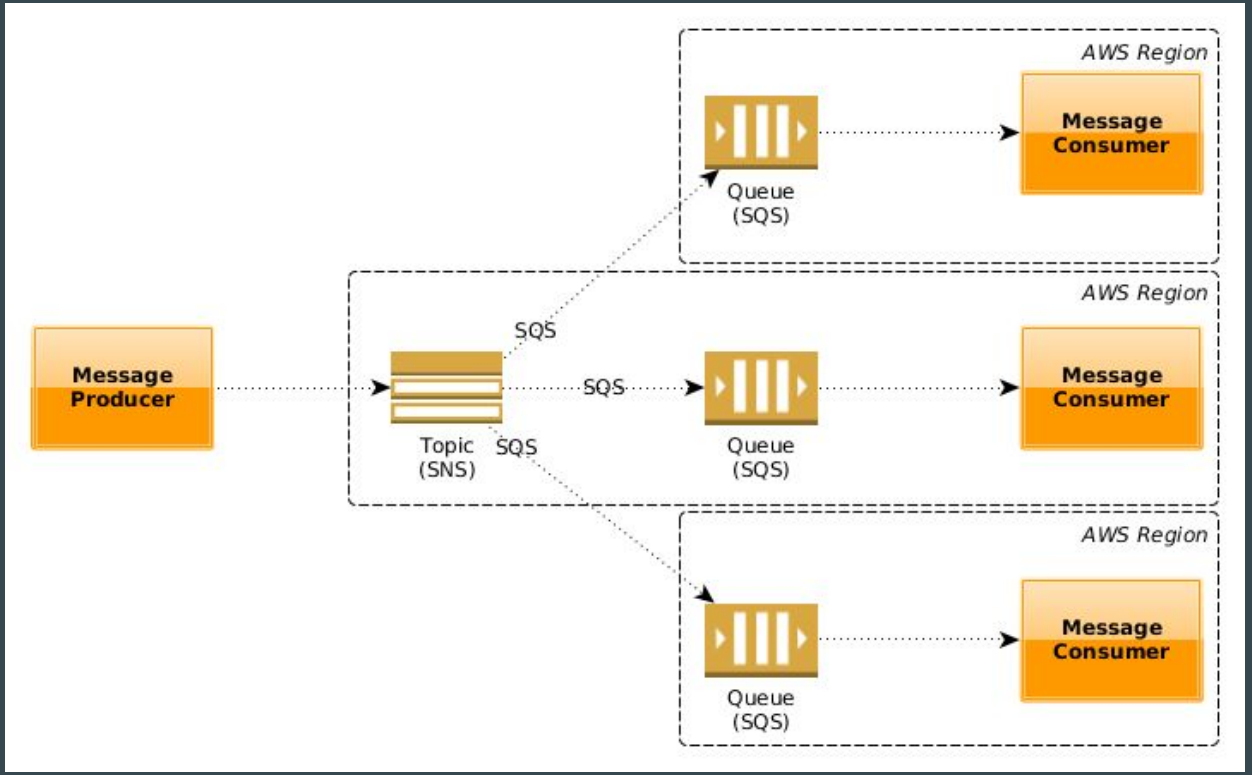
About AWS Messaging

- Simple Queue Service (SQS) provides queues
  - Support FIFO queues, which supports exact ordering of messages
  - Messages can be up to 256K bytes
  - AWS supports dead-letter queues
  - Large message support through S3

- Simple Notification Service (SNS) provides a notification service that supports different types of notification mechanisms
  - SQS, email, SMS, HTTP(S), and Lambda
  - You can hook up any number of SQS queues to an SNS topic

- Advantages of using AWS-Native Services
  - AWS provides redundancy and scaling for the queues and topics
  - You pay for what you use
  - All infrastructure is managed by AWS

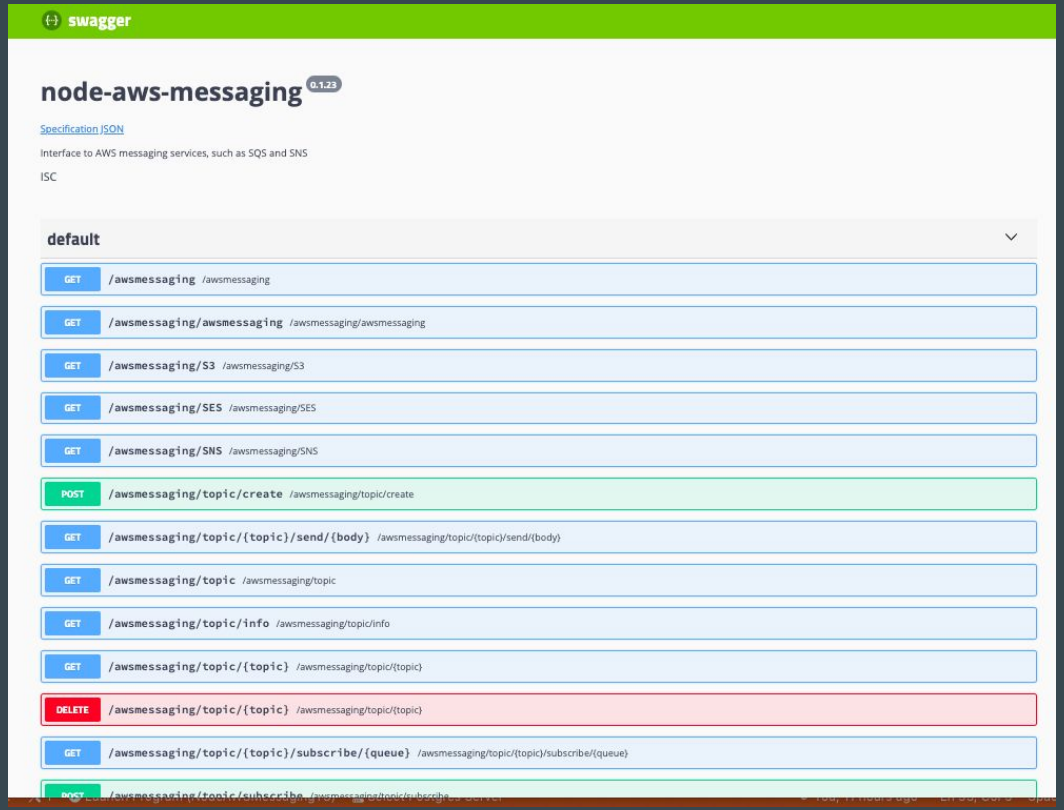
Implementing Pub-Sub with SNS and SQS



Features of the AWS Messaging Framework

- Supports queues (SQS), notifications (SNS), monitoring (CloudWatch)
- Queues and topics can be hooked up to CloudWatch
- ResourceWatcher monitors changes in resources
- Event publisher (socket.io and Node JS EventEmitter)
- REST API
- Multiple kinds of AWS authentication
- Can be used as a library or in server mode (supports PM2 and Docker)

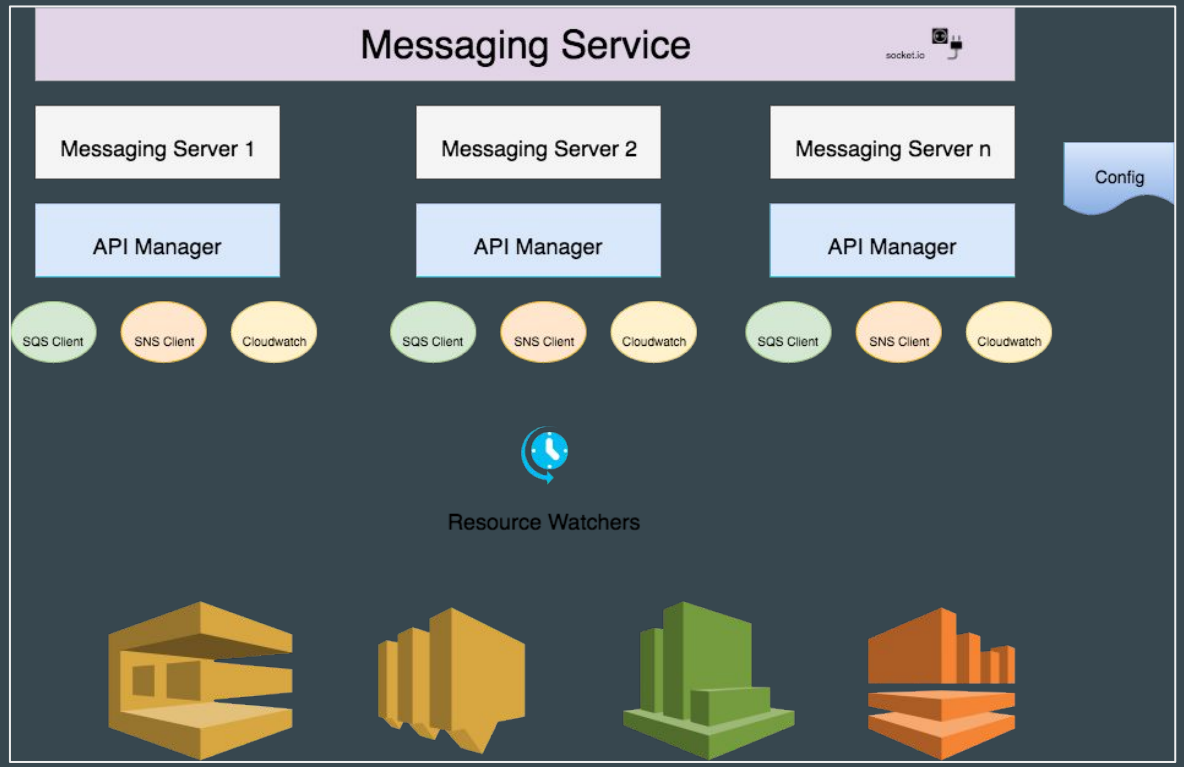
Swagger Page



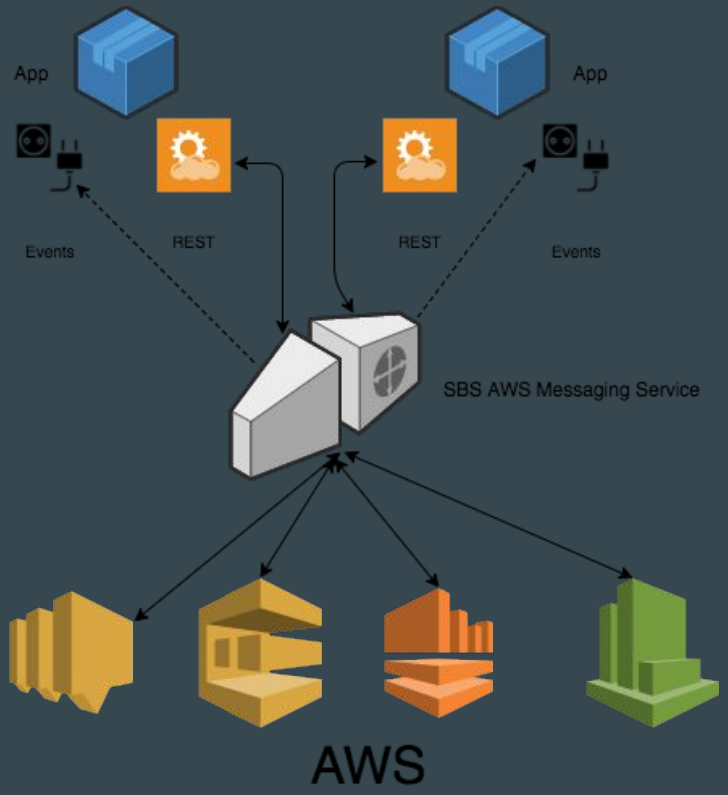
Operations

- Create a queue
- Create a topic
- Show a list of queues and queue info
- Show a list of topics and topic info
- Show info about the queue we just created
- Show info about the topic we just created
- Publish a message to the queue
- Publish a message to the topic
- Subscribe a topic to a queue
- Publish a message to the topic and show that it is in the queue
- Receive a message in the queue
- Delete a subscription
- Delete a topic
- Delete a queue
- Create and delete an alarm

Architecture of the AWS Messaging Framework



Interfacing to the AWS Messaging Framework



To Do

- Explore more AWS-native services
  - Kinesis
  - Lambda
- More intelligence around SNS email and Lamba
- Integration with Prometheus for Monitoring
- Auditing of AWS Resource Usage
- Backport Node version to C#