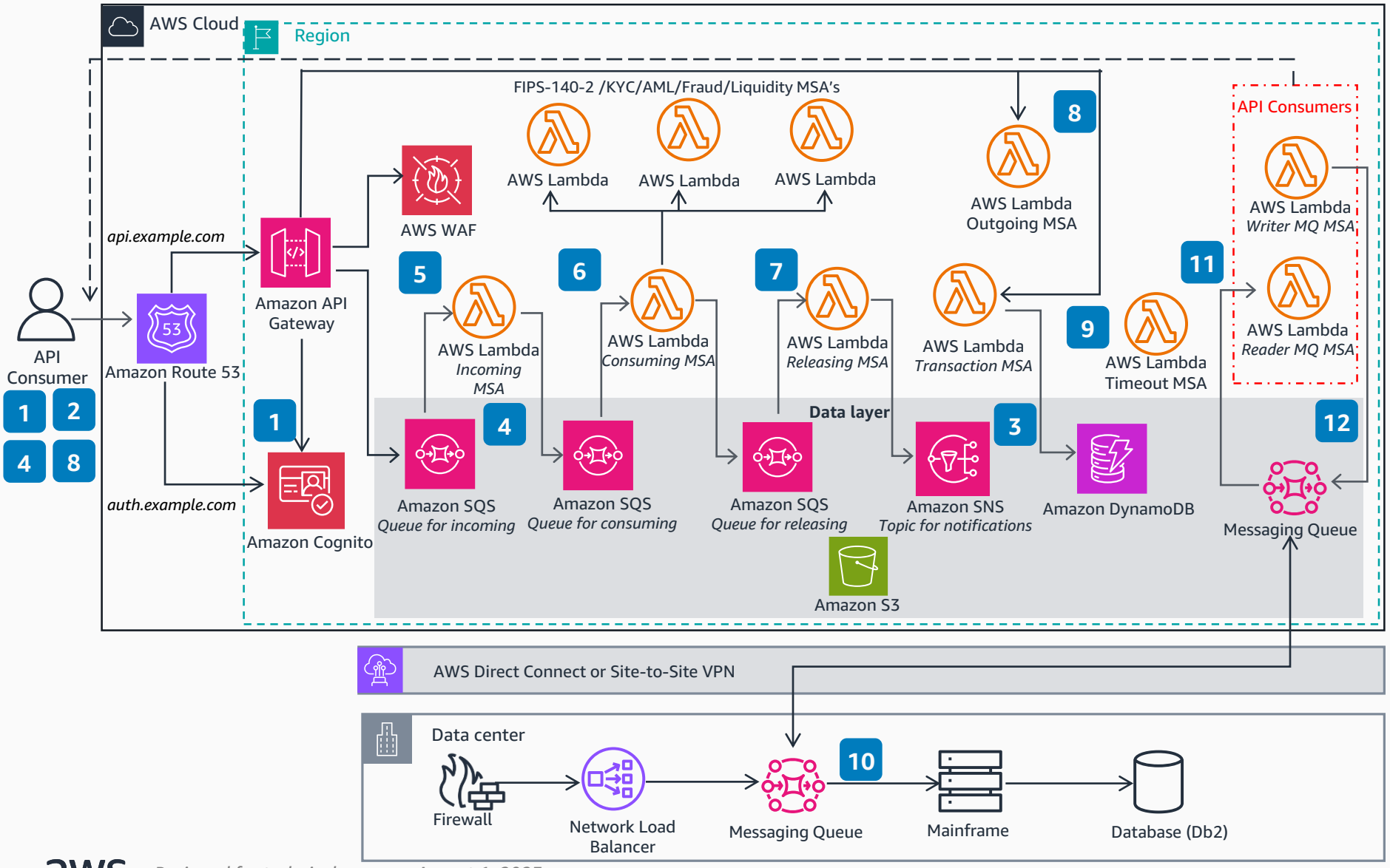
Guidance for ISO 20022 Messaging Workflows on AWS

This architecture presents a way to receive, consume, and release ISO 2002 payment messages within a single AWS Region.



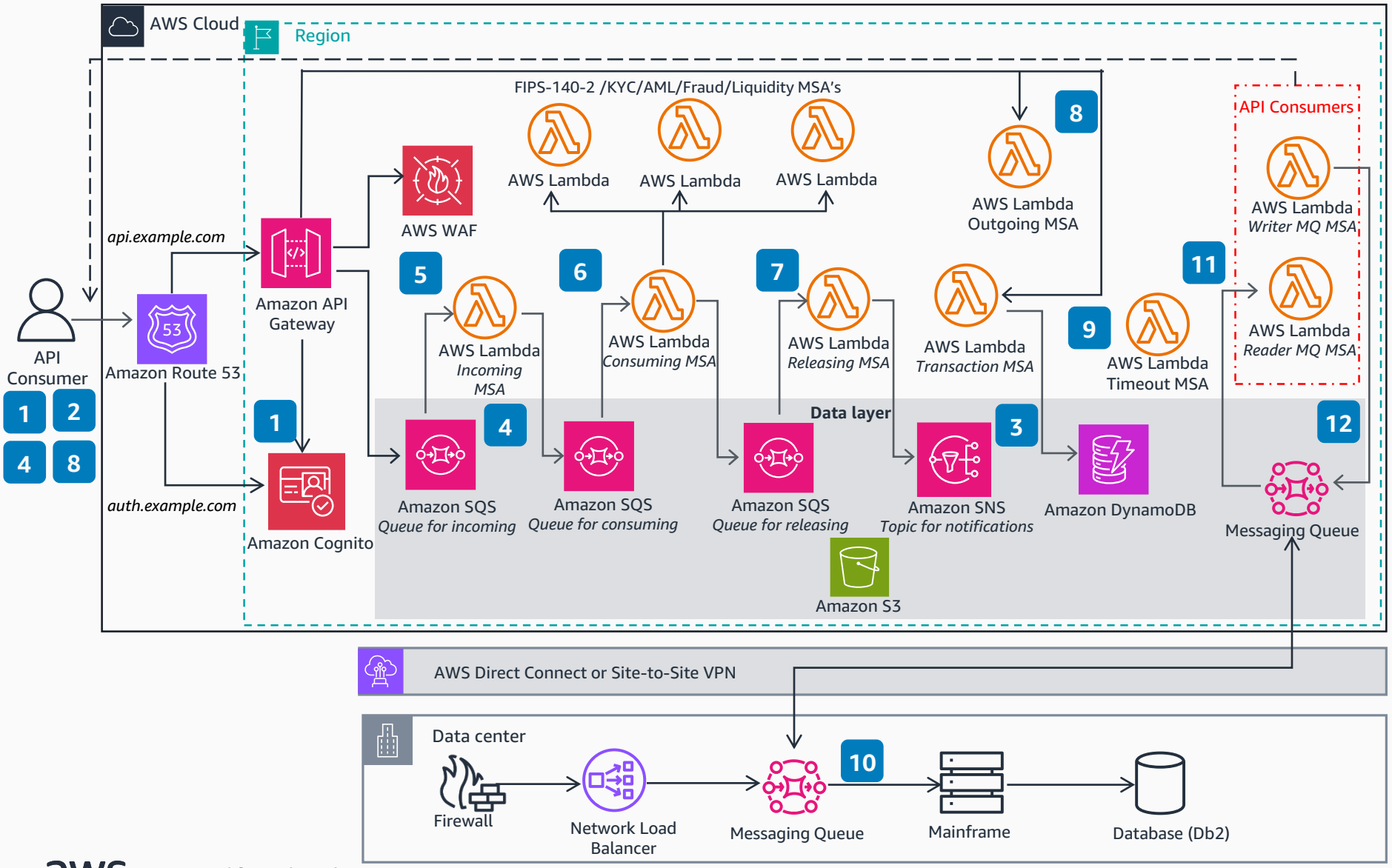
1. API consumer calls the regional AUTH endpoint associated with a Region-specific **Amazon Cognito** client ID and client secret. It receives OAuth 2.0 access token (to be used with all subsequent API requests).
2. API consumer calls the Regional API endpoint associated with the Transaction Microservice Architecture (MSA), and receives HTTP 200 with response payload. It includes a transaction ID (to be used with all subsequent API requests).
3. Transaction MSA generates universally unique identifier version 4 (UUID4). It verifies if it's unique within the current partition in **Amazon DynamoDB** (transaction table). It records in **DynamoDB** (status = ACCP); otherwise, it retries up to 3 times.
4. API consumer calls Regional API endpoint associated with Incoming Queue. It passes transaction ID as HTTP header, and ISO 20022 incoming message as HTTP body (this step starts internal event-driven workflow).
5. Incoming MSA consumes ISO 20022 message from Incoming Queue, and stores it into an **Amazon Simple Storage Service** (Amazon S3) bucket (incoming path). It records the step in **DynamoDB** (status = ACTC), and pushes the incoming message to the Processing Queue.
6. Processing MSA consumes ISO 20022 message from Processing Queue. It runs technical and business validations, including sync calls to other MSA's. Some examples are: Federal Information Processing Standards (FIPS-104-2), Know Your Customer (KYC), Anti-Money Laundering (AML), Fraud, and liquidity records. It records the step in **DynamoDB** (status = ACSP or RJCT) and pushes an ISO 20022 confirmation or rejection message to the Releasing Queue.
7. Releasing MSA consumes ISO 20022 message from Releasing Queue, stores it into an **Amazon S3** bucket (outgoing path), records step in **DynamoDB** (status = ACSC or RJCT), and pushes notification to **Amazon Simple Notification Service** (Amazon SNS).
8. API consumer calls the Regional API endpoint associated with Outgoing MSA, and receives HTTP 200 with ISO 20022 outgoing message as response payload.

Reviewed for technical accuracy August 1, 2023

AWS Reference Architecture

Guidance for ISO 20022 Messaging Workflows on AWS

This architecture presents a way to receive, consume, and release ISO 2002 payment messages within a single AWS Region.



9 Timeout MSA invokes every 15 seconds to retrieve any transaction that exceeds service level agreement (SLA). It generates rejection ISO 20022 message, stores it in **Amazon S3** (outgoing path), and records new step in **DynamoDB** (status = RJCT).

10 OPTIONALLY, for on-premises downstream systems leveraging existing messaging capabilities (for example IBM MQ, or Kafka), deploy the same tool in the AWS Cloud and use the native replication between on-premises and the Cloud.

11 Messaging Queue (MQ) Reader MSA consumes messages from cloud-based MQ and submits them to the Incoming API (see the preceding Steps 1 through 5).

12 MQ Writer MSA consumes messages from Outgoing API, and pushes them to cloud based MQ (see the preceding Steps 1, 2, and 9).

Reviewed for technical accuracy August 1, 2023

AWS Reference Architecture