# AWS Streaming Data Solution for Amazon Kinesis

Option 1: AWS CloudFormation template using Amazon API Gateway, Amazon Kinesis Data Streams, and AWS Lambda
Deploy a solution that automatically configures the AWS services necessary to easily capture, store, process, and deliver streaming data. To deploy this solution using the available AWS CloudFormation template, select **Deploy with AWS**.
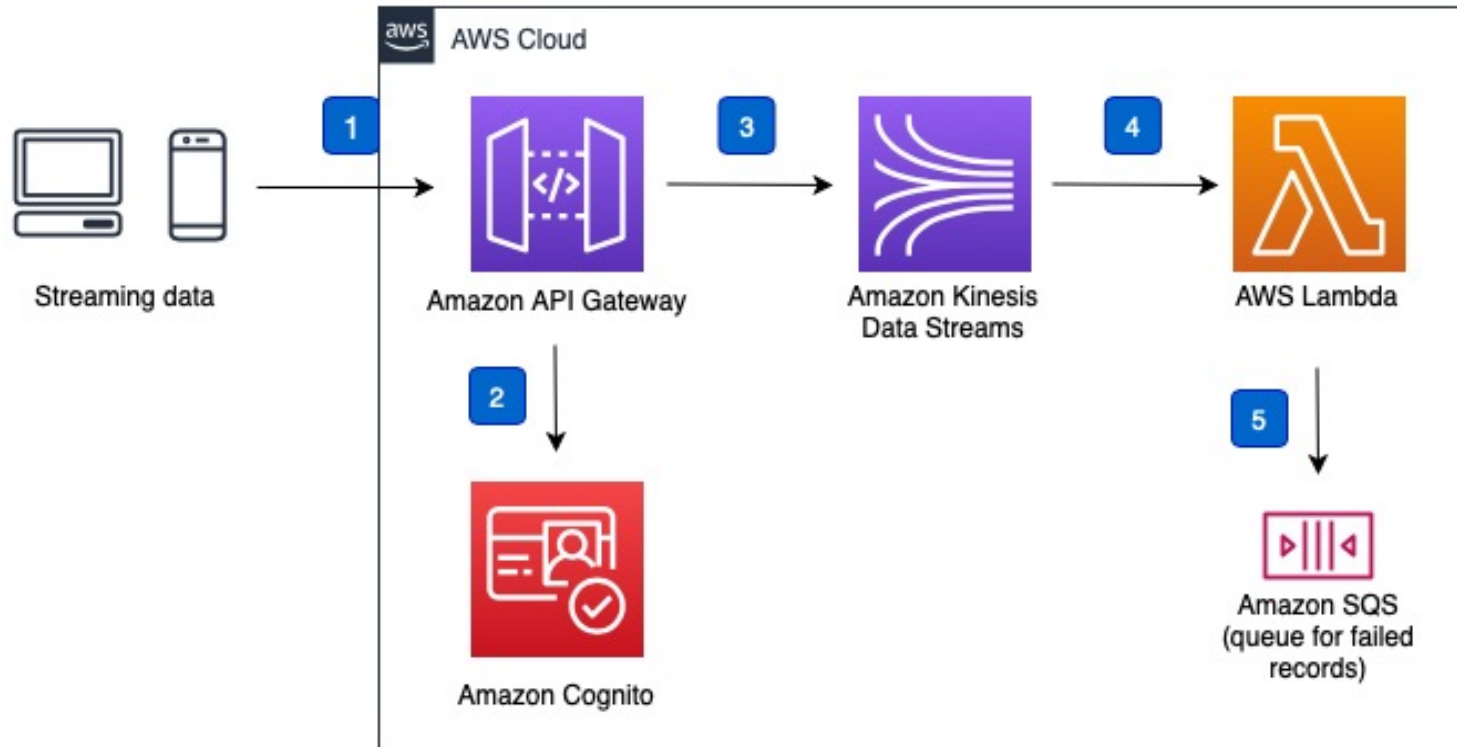
1. An **Amazon API Gateway** REST API that acts as a proxy to **Amazon Kinesis Data Streams**, adding either an individual data record or a list of data records.

2. An **Amazon Cognito** user pool is used to control who can invoke REST API methods.

3. **Kinesis Data Streams** to store the incoming streaming data.

4. An **AWS Lambda** function processes the records from the data stream.

5. Errors and failed records that occur during **AWS Lambda** processing are annotated, and the events are stored in **Amazon Simple Queue Service** (Amazon SQS). The queue stores metadata for failed batch records and Lambda errors, allowing customers to retrieve these records and determine the next steps to resolve them.
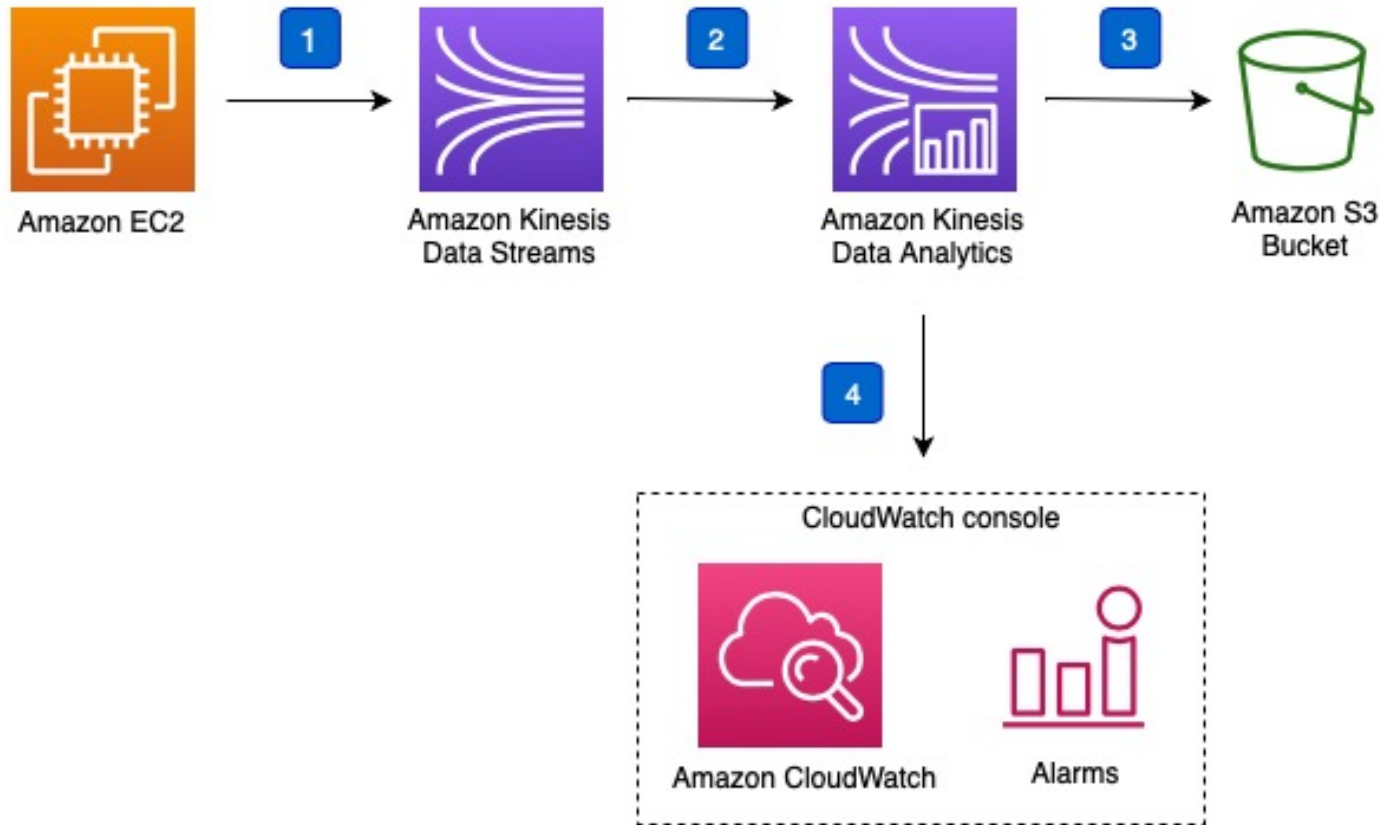
Deployable AWS Reference Implementation

Deploy with AWS

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Option 2: AWS CloudFormation template using Amazon EC2, Amazon Kinesis Producer Library, Amazon Kinesis Data Streams, Amazon Kinesis Data Analytics, and Amazon CloudWatch

Deploy a solution that automatically configures the AWS services necessary to easily capture, store, process, and deliver streaming data. To deploy this solution using the available AWS CloudFormation template, select **Deploy with AWS**.

1. An **Amazon Elastic Compute Cloud** (Amazon EC2) instance that uses the **Amazon Kinesis Producer Library** (KPL) to generate data.

2. **Kinesis Data Streams** to store the incoming streaming data.

3. **Kinesis Data Analytics** processes the incoming records and saves the processed data in an **Amazon Simple Storage Service** (Amazon S3) bucket.

4. An **Amazon CloudWatch** dashboard monitors application health, progress, resource utilization, events, and errors.
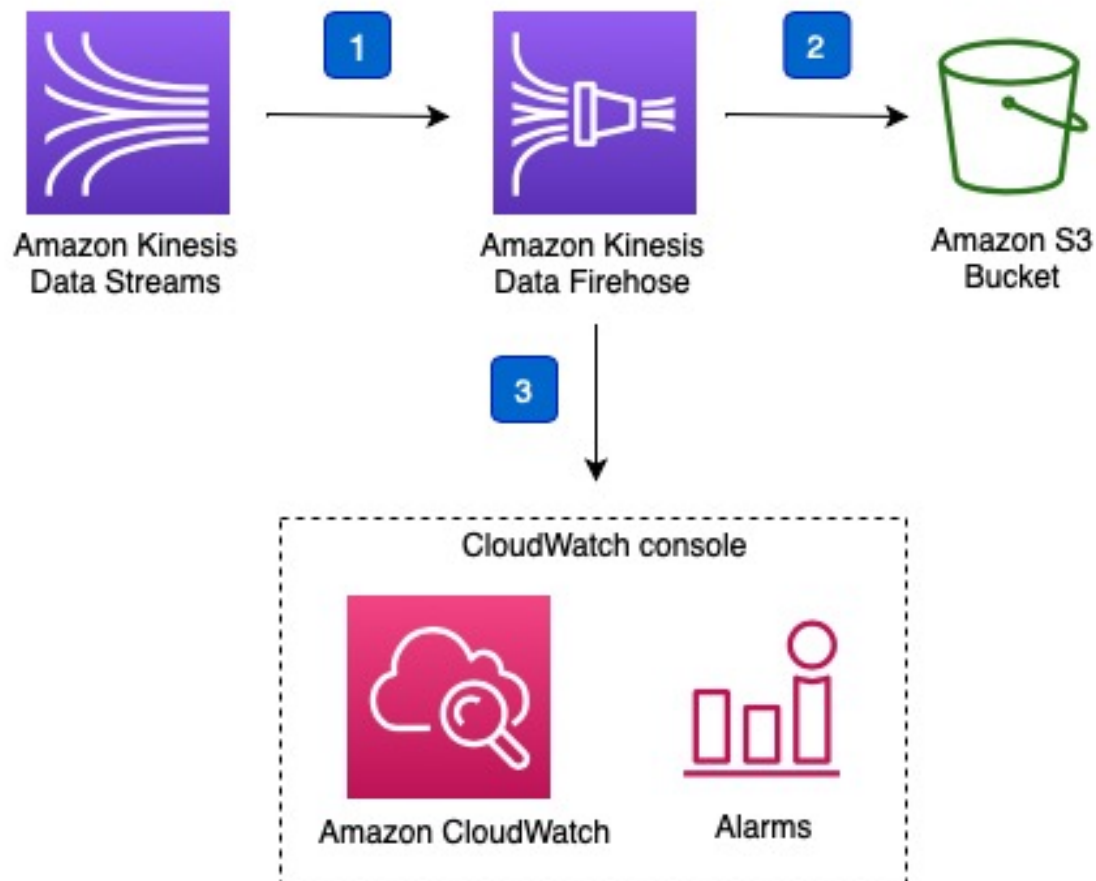
Deployable AWS Reference Implementation

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Option 3: AWS CloudFormation template using Amazon Kinesis Data Streams, Amazon Kinesis Data Firehose, and Amazon S3

Deploy a solution that automatically configures the AWS services necessary to easily capture, store, process, and deliver streaming data. To deploy this solution using the available AWS CloudFormation template, select **Deploy with AWS**.

1   **Kinesis Data Streams** stores the incoming streaming data.

2   **Kinesis Data Firehose** buffers the data before delivering the output to an **Amazon S3** bucket. It is a fully managed service that automatically scales to match the throughput of your data and requires no ongoing administration.

3   An **Amazon CloudWatch** dashboard monitors the data ingestion and buffering. CloudWatch alarms are set on essential metrics for **Kinesis Data Firehose**.

Deployable AWS Reference Implementation

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Option 4: AWS CloudFormation template using Amazon Kinesis Data Streams, Amazon Kinesis Data Analytics, and Amazon API Gateway

Deploy a solution that automatically configures the AWS services necessary to easily capture, store, process, and deliver streaming data. To deploy this solution using the available AWS CloudFormation template, select **Deploy with AWS**.
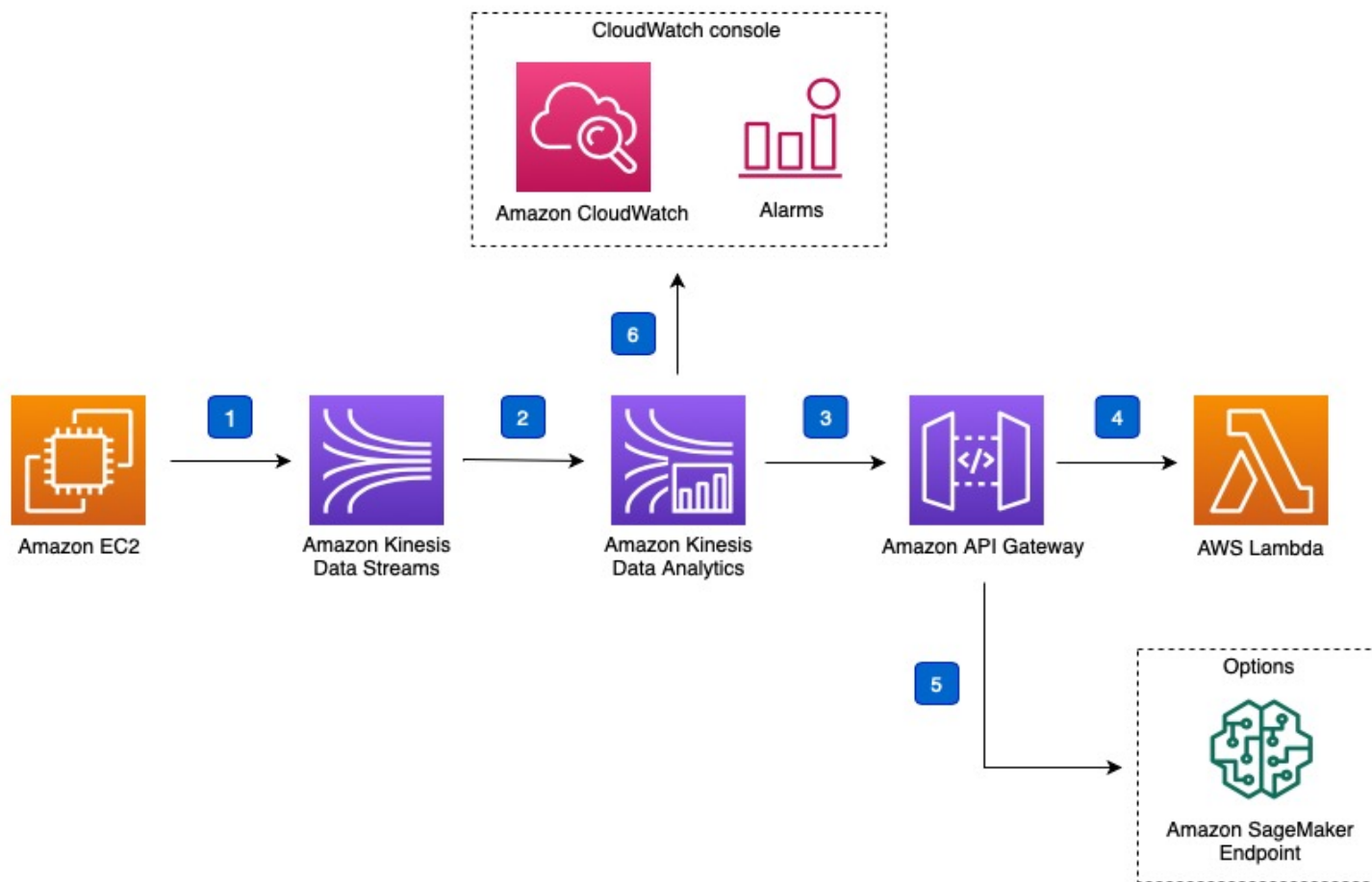
1. An **Amazon Elastic Compute Cloud** (Amazon EC2) instance that uses the **Amazon Kinesis Producer Library** (KPL) to generate data.

2. **Kinesis Data Streams** stores the incoming streaming data.

3. **Kinesis Data Analytics** processes the incoming records and asynchronously invokes an external endpoint.

4. The demo application invokes an **AWS Lambda** function.

5. The external API can be any integration supported by **Amazon API Gateway** (for example, an **Amazon SageMaker** endpoint).

6. An **Amazon CloudWatch** dashboard monitors application health, progress, resource utilization, events, and errors.

Deployable AWS Reference Implementation

Deploy with AWS