AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

SVS306-R2

Serverless image processing workflows at scale

Talia Nassi (she/her)
Senior Developer Advocate
AWS Serverless

Ben Smith (he/him)
Senior Developer Advocate
AWS Serverless

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

General housekeeping

- Running time is 2 hours and 15 minutes
- AWS account will be provided – please use the access code
- This account is temporary
- Questions? We are here to help!

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Prerequisites

- Workshop cannot be completed with a tablet
- Compatible with Chrome/Firefox (not Safari)
- Familiarity with the AWS Management Console

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Agenda



Intro to serverless



AWS services used in each module



Build the state machine

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

What is serverless?

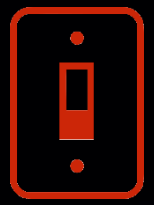


No infrastructure provisioning, no management



Automatic scaling

Pay for value



Highly available and secure



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Serverless applications



Changes in data state

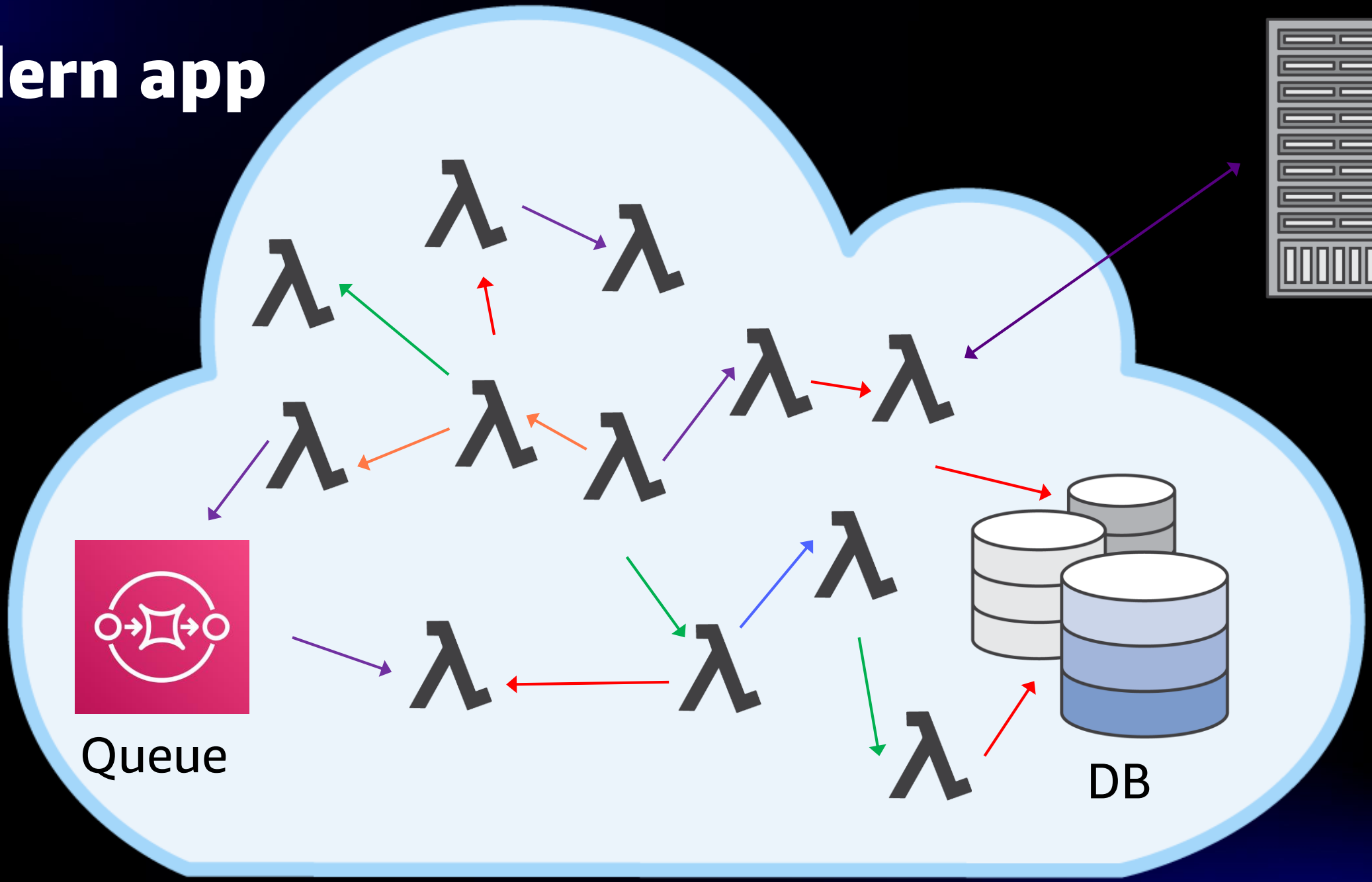
Requests to endpoints

Changes in resource state

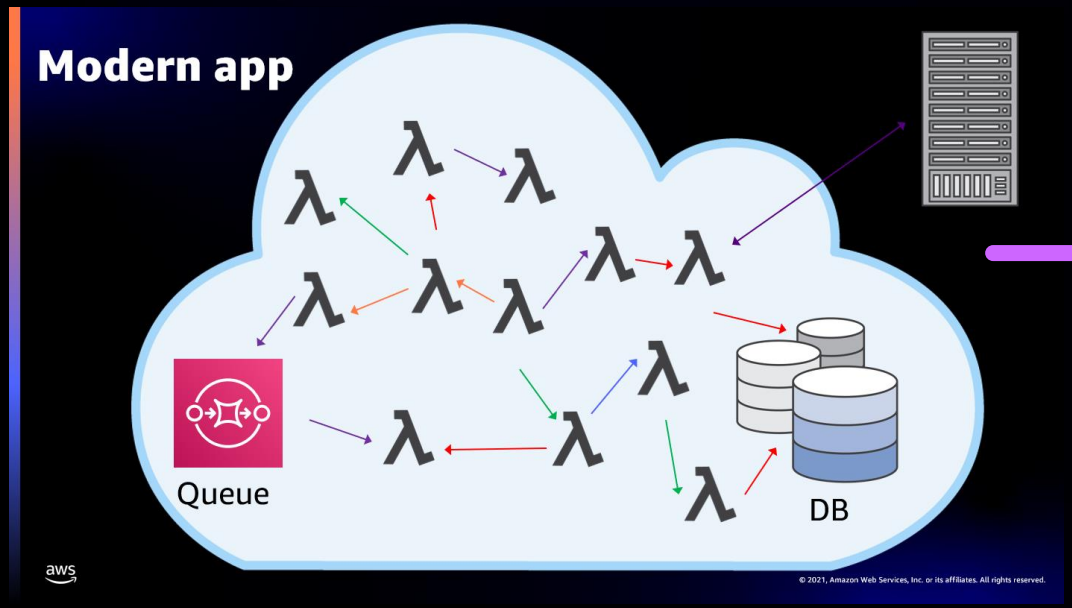
Node.js
Python
Java
C#
Go
Ruby
Runtime API

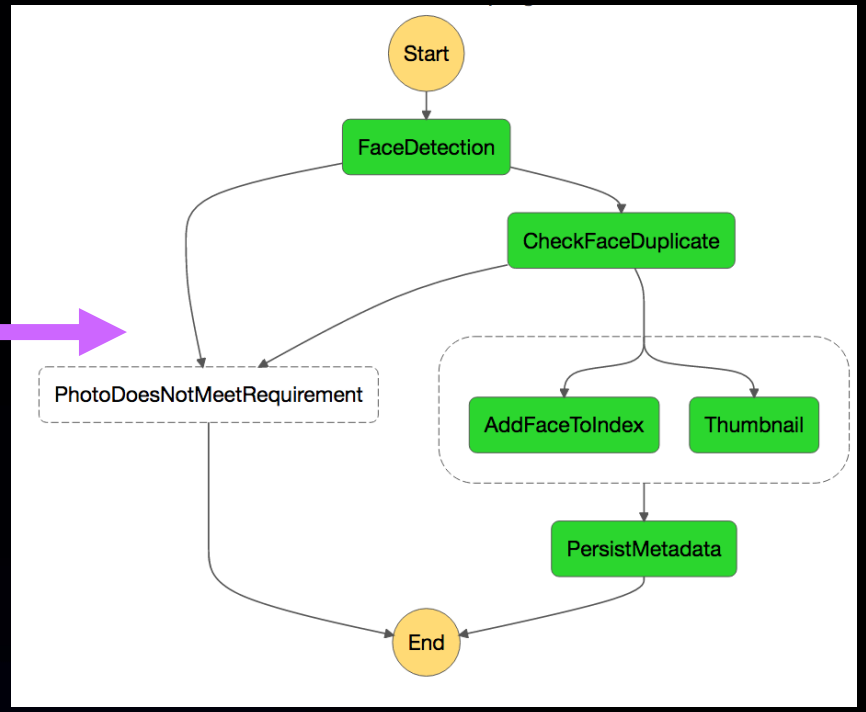
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Modern app



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.





AWS Step Functions

aws
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The AWS services you will be using today

Orchestration layer



AWS
Step Functions

Compute layer



AWS
Lambda

Services layer



Amazon
Rekognition



Amazon S3

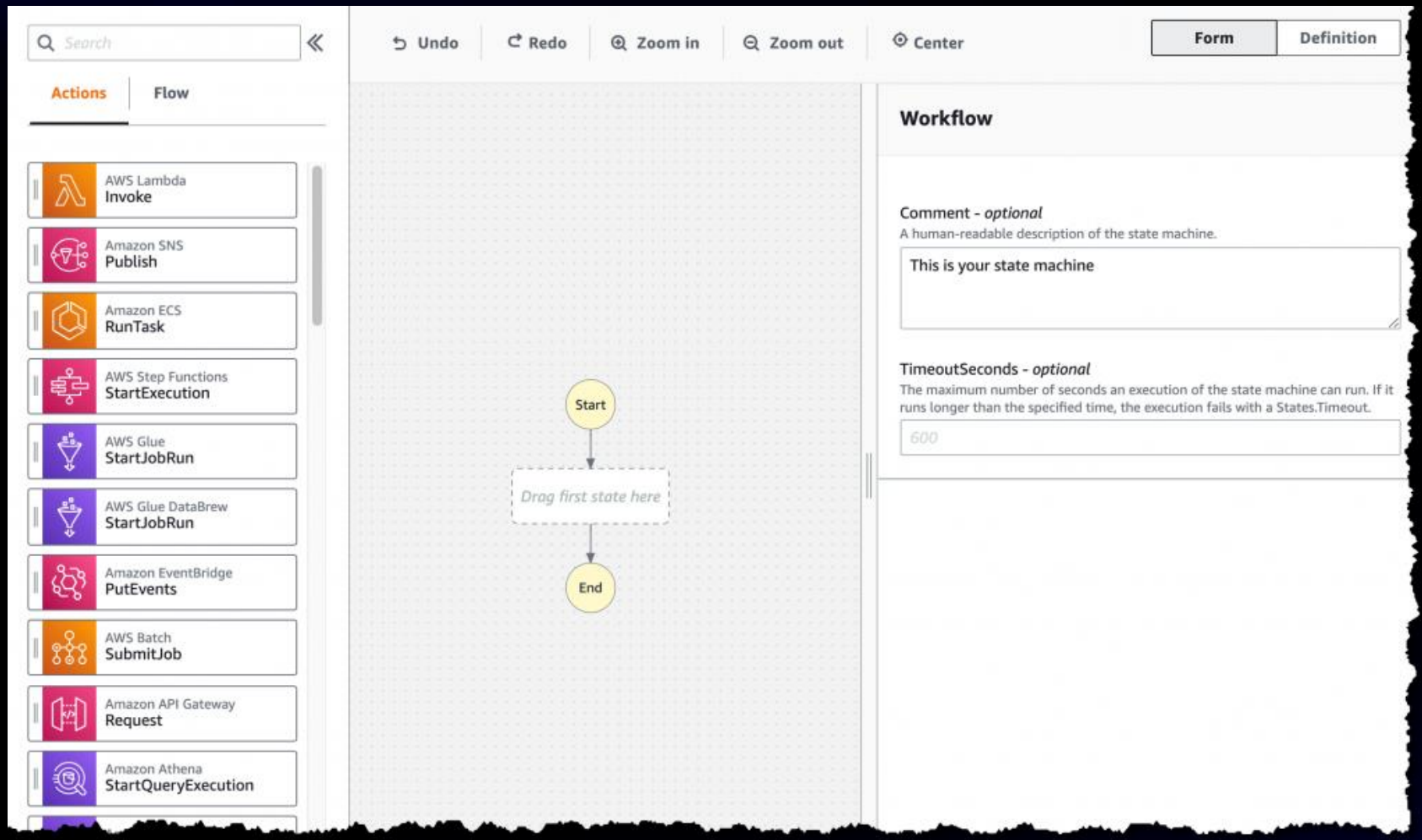


Amazon
DynamoDB

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Step Functions Workflow Studio

VISUAL WORKFLOW ORCHESTRATION



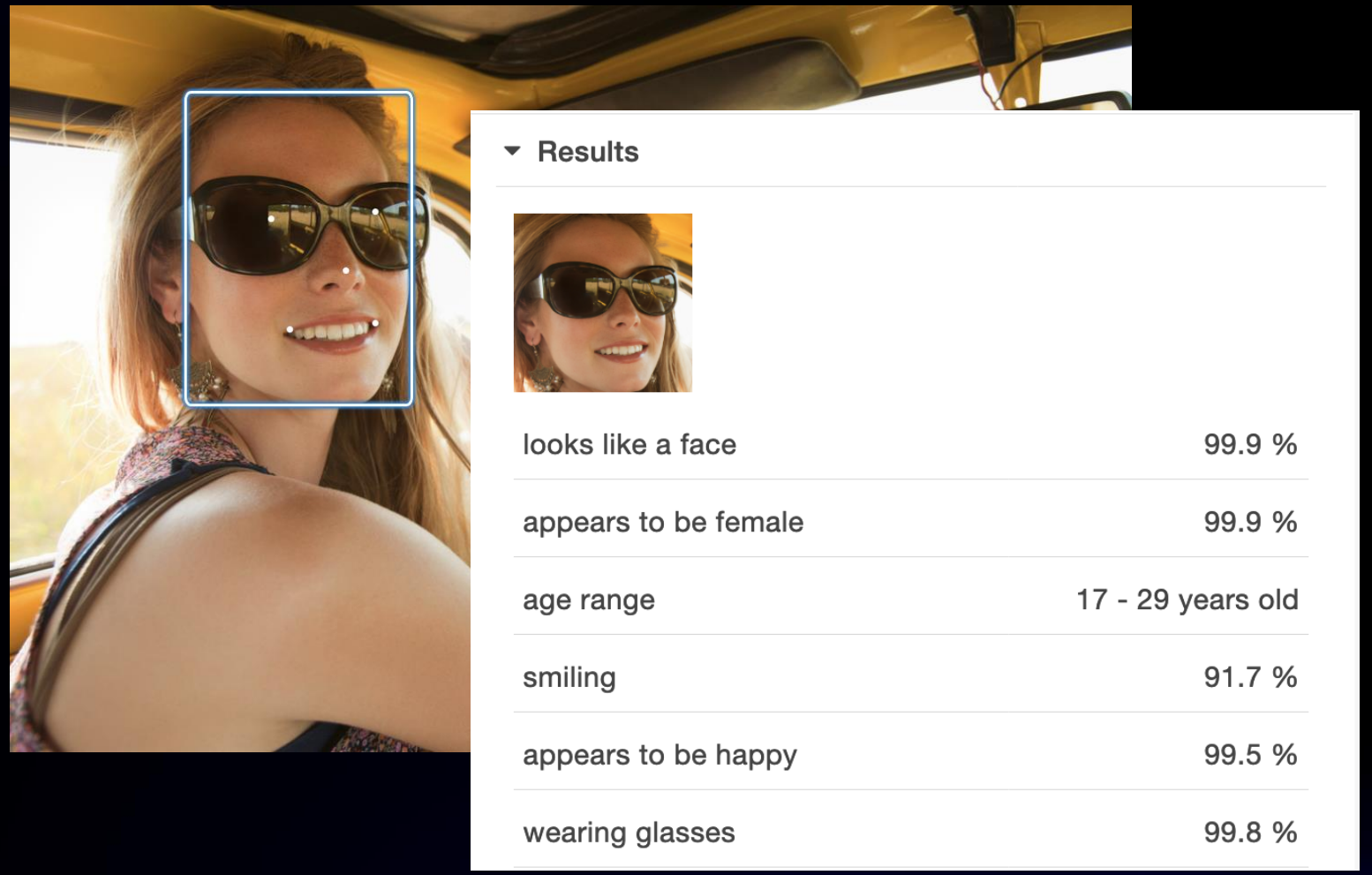
- Focus on your business logic, not writing configuration code or workflow definitions
- Reduces time to build your first workflow
- Develop workflows faster using a visual tool
- Drag and drop different actions from AWS services, configure them from the UI, monitor your executions

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Rekognition

Deep-learning–based visual analysis service

Search, verify, and organize millions of images and video



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Workshop overview

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The architecture



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Today’s journey

- Module 1: Setup
  - Event Engine, AWS Cloud9
- Module 2: Implementation
  - Face collection, state machine, de-duplication, parallel processing, database
- Module 3: Validation
  - Upload and test

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Cloud9



- Fully-featured, cloud-based IDE
- Integrated tools for serverless development
- Built-in terminal and local storage
- Provisioned bandwidth in AWS network (not dependent on Wi-Fi)
- This workshop is 100% browser-based, please do not use your local IDE or terminal

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

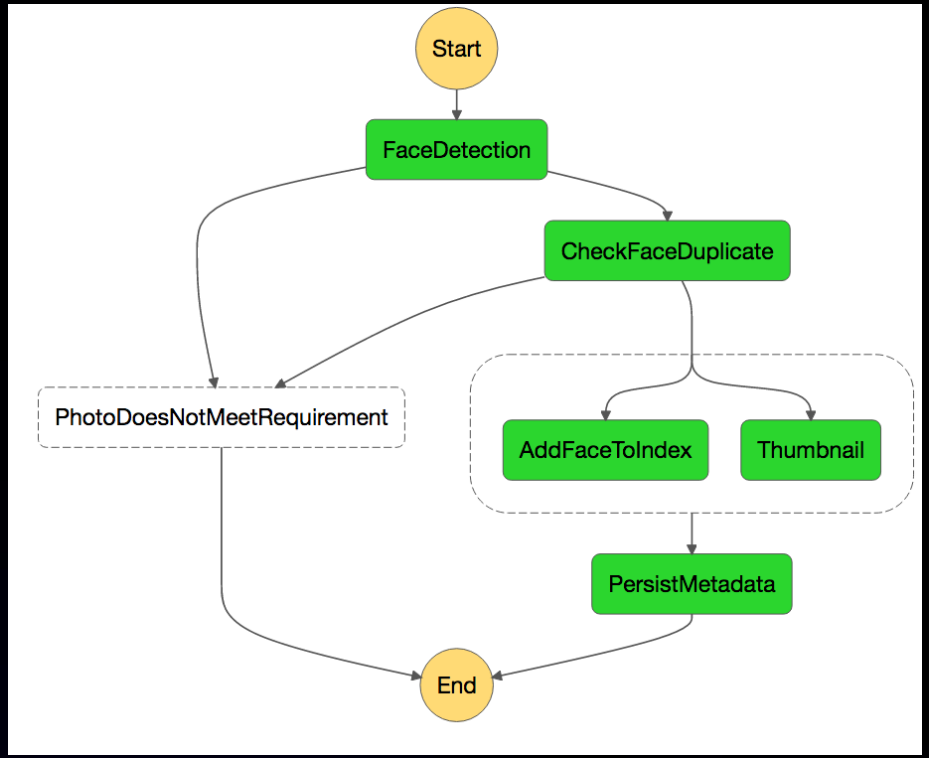
Today’s journey

- Module 1: Setup
  - Event engine, AWS Cloud9
- Module 2: Implementation
  - Face collection, state machine, de-duplication, parallel processing, database
- Module 3: Validation
  - Upload and test

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Module 2: Implementation

- Create a face collection
- Deploy the CloudFormation stack
- Build the Step Functions state machine:
  - Face detection
  - Deduplication
  - Parallel processing
  - Saving metadata



aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Today’s journey

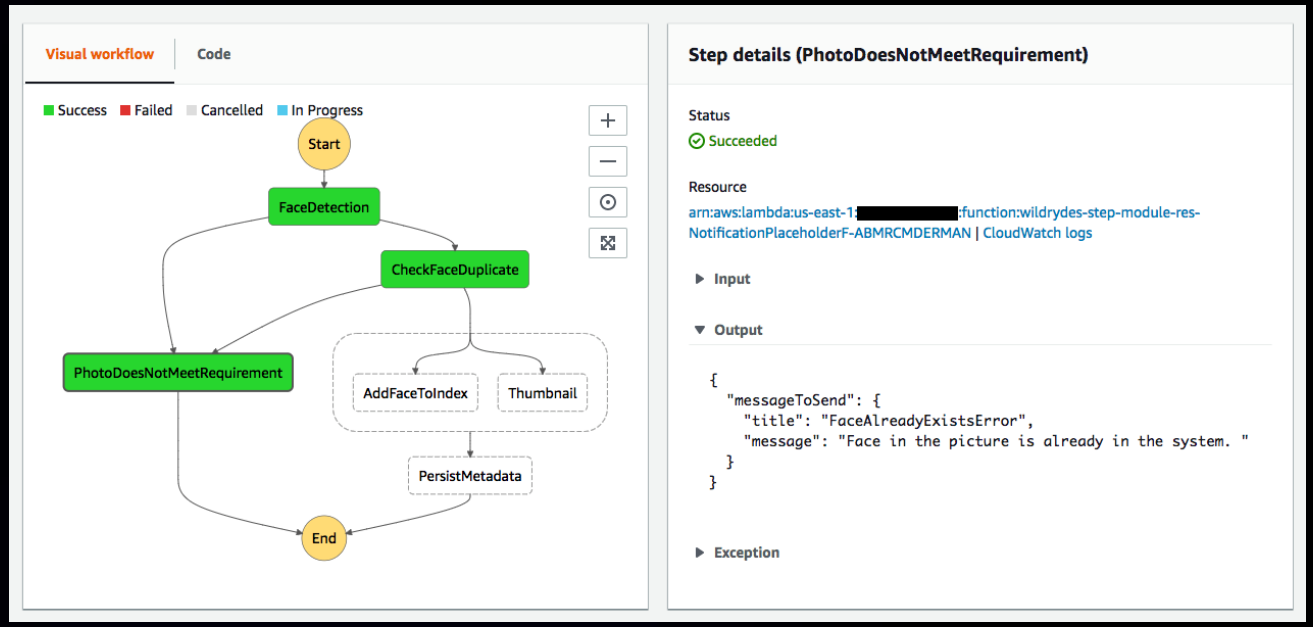
- Module 1: Setup
  - Event engine, AWS Cloud9
- Module 2: Implementation
  - Face collection, state machine, de-duplication, parallel processing, database
- Module 3: Validation
  - Upload and test

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Module 3: Validation

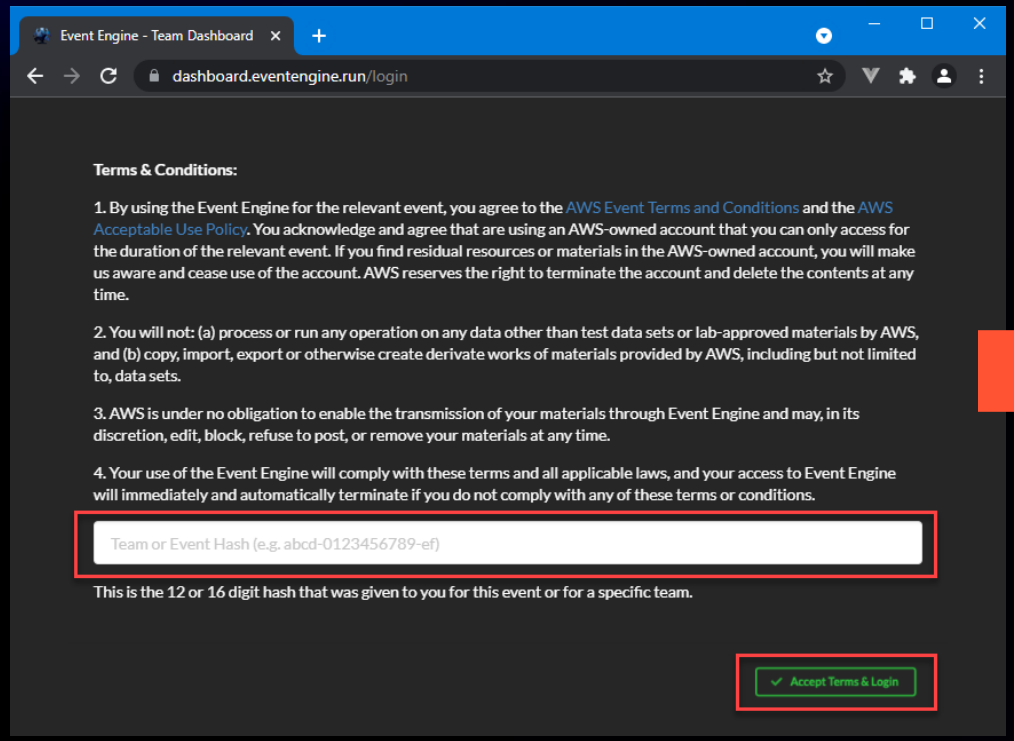
Test the final state machine:

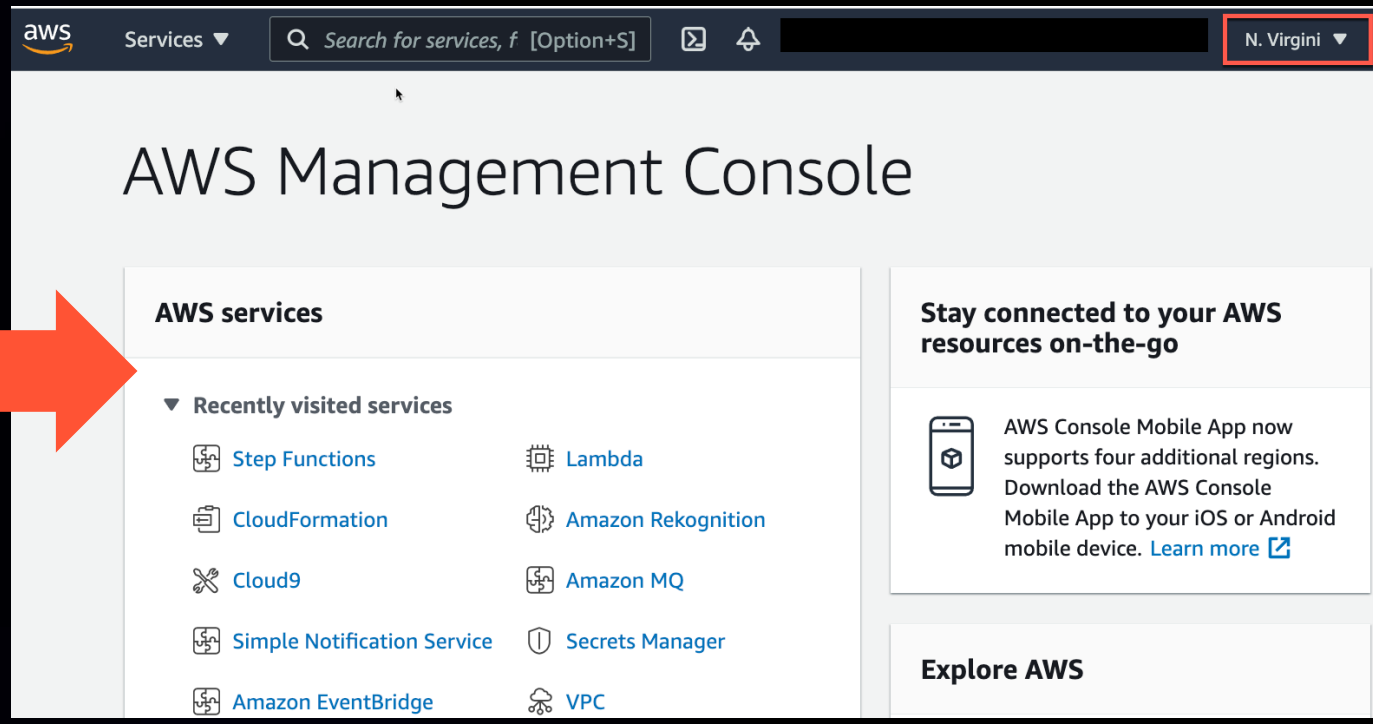
- Thumbnails generated?
- Database entry created?
- Duplicates caught?
- Input / output correct?



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Sign in to AWS Event Engine





Navigate to https://dashboard.eventengine.run

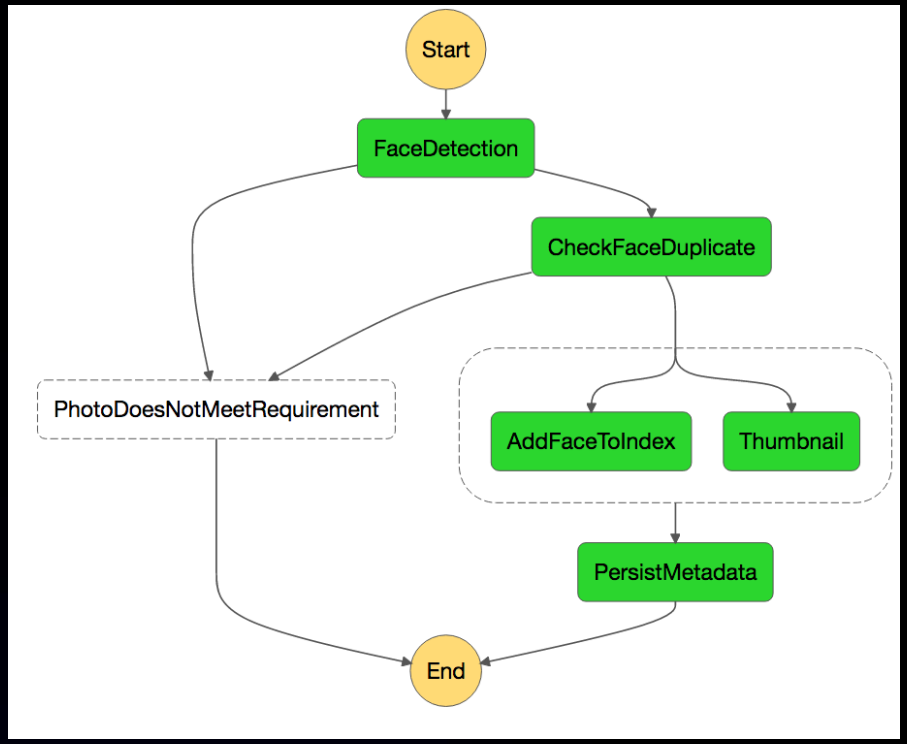
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Let’s get started!

https://s12d.com/imageprocessing

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.





© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Thank you!

Talia Nassi

talianas@amazon.com
@talia_nassi

Ben Smith

benjasl@amazon.com
@benjamin_l_s

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.