



# INNOVATE2018

## ONLINE CONFERENCE



# Extract Data from Images and Videos with Amazon Rekognition (Level 300)

Gabe Hollombe, Technical Evangelist

# COMMUNICATION



ABC

# COMMUNICATION

ABC





# Amazon Rekognition

Deep learning-based image and video analysis service



**Image**



**Stored  
Video**



**Streaming  
Video**



# Amazon Rekognition Image

## Features



Object and Scene  
Detection



Facial  
Analysis



Face  
Recognition



Unsafe Image  
Detection



Celebrity  
Recognition



Text in Image





# Amazon Rekognition Image

## Object & Scene Detection



Boat	99.3%
Plant	95.1%
Harbor	94.8%
Waterfront	94.8%
Yacht	78.1%
Dock	75.7%
City	72.4%
Architecture	71.8%
Urban	63.9%
Building	62.3%
Marina	60.3%
Plaza	51.1%
Spire	50.8%
Neighborhood	50.7%
Flower	50.6%



# Amazon Rekognition Image

## Face Analysis

### Demographic Data

Age Range	29-45
Gender: Male	96.5%

### Facial Landmarks

EyeLeft, EyeRight, Nose  
RightPupil, LeftPupil  
MouthRight, LeftEyeBrowUp  
**Bounding Box**

### Image Quality

Brightness	23.6%
Sharpness	99.9%



### Emotions

Happy	83.8%
Surprised	0.65%

### General Attributes

Smile:True	23.6%
EyesOpen:True	99.8%
Beard:True	99.5%
Mustache:True	99.9%

### Facial Pose

Pitch	1.446
Roll	5.725
Yaw	4.383





# Amazon Rekognition Image

## Face Search







# Amazon Rekognition Image

## Celebrity Recognition

Automatically recognize hundreds of thousands of global, public figures in politics, sports, entertainment, business, and media.



MatchConfidence: 100

Name: Jeff Bezos



# Amazon Rekognition Image

## Unsafe Content Detection





# Amazon Rekognition Image

## Unsafe Content Detection



**Suggestive 98.7%**

**Female Swimwear Or Underwear 98.7%**



# Amazon Rekognition Image

## Text In Image



| IT'S - 97% |

| MONDAY - 99% |

| but - 97% | keep - 96% |

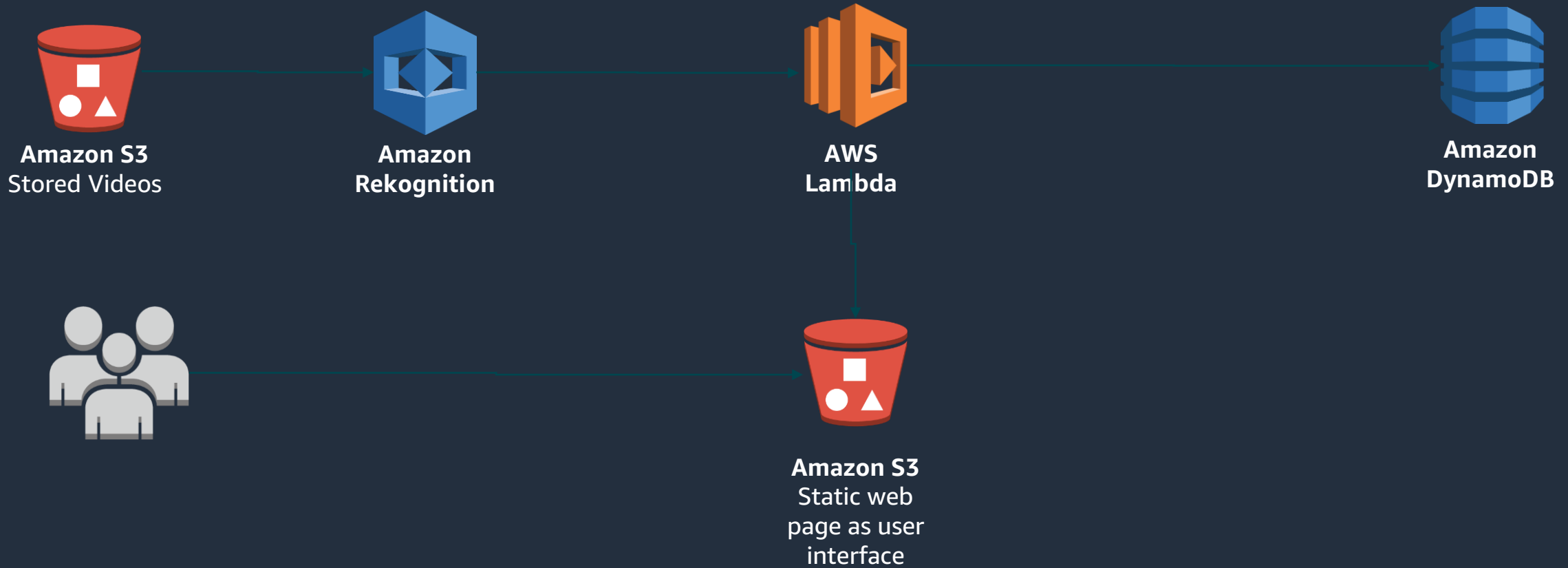
| Smiling - 99% |





# Amazon Rekognition Image

## Text Based Visual Search

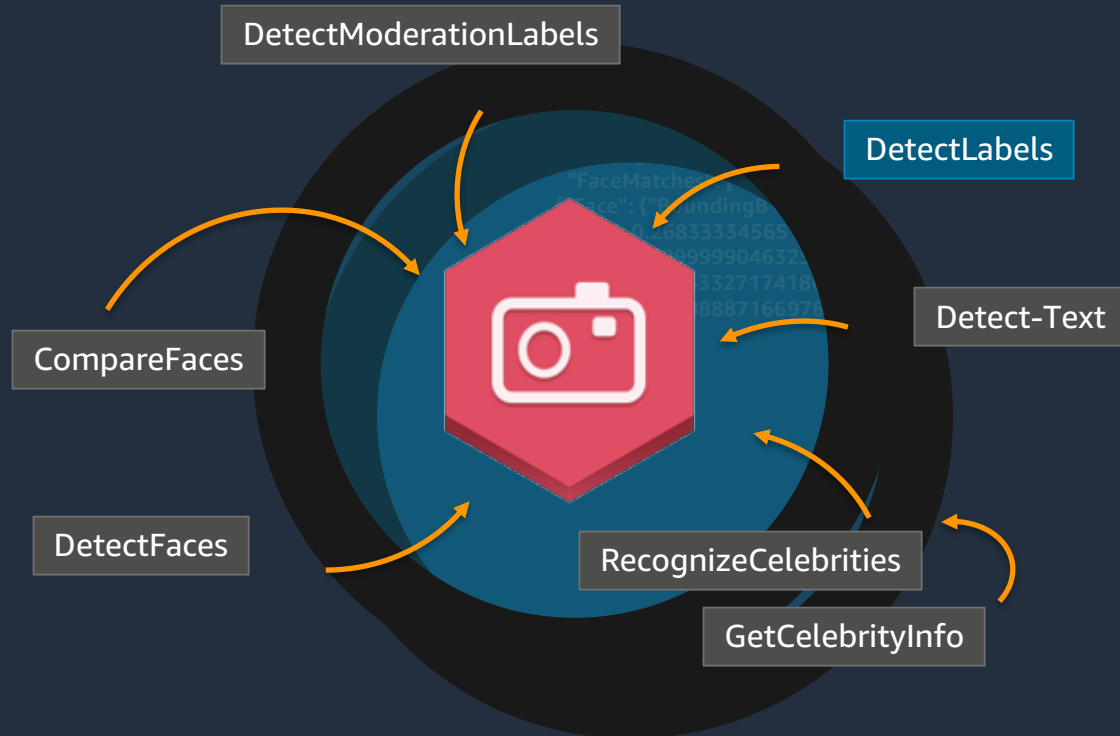




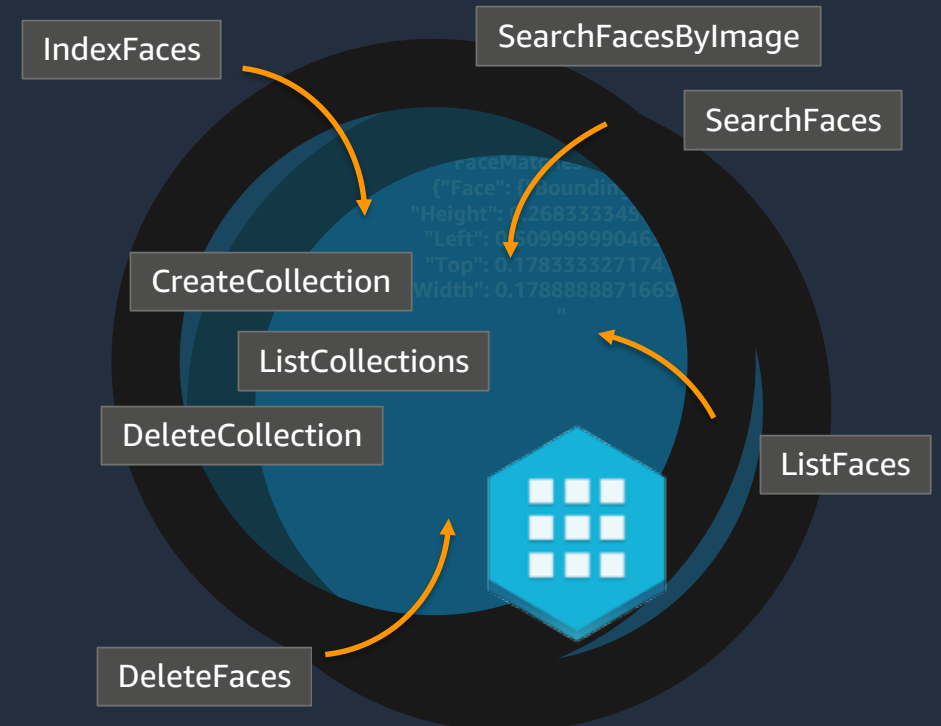
# Amazon Rekognition

## API Overview

### Non-storage API Operations



### Storage-based API Operations





# Amazon Rekognition

## Customer Reference

*Pinterest*

Extract the rich text  
captured in images at scale

Processed with Amazon  
Rekognition for millions of Pins  
stored in Amazon S3

**Artfinder**

Match customers with art they will  
love thanks to recommendation  
tools built on AWS



# Amazon Rekognition Video

## Necessity



Enhance overall business safety and security



Improve business operations and productivity



Improve customer experience and grow loyalty



Improve personal and family security





# Limitations of Traditional Solution



Image analysis



Temporal information lost



Motion context lost



Slow and error-prone



# Amazon Rekognition

Deep learning-based image and video analysis service



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# Amazon Rekognition Video

## Features



**Object and activity  
Detection**

**Person tracking**

**Face recognition**

**Real-time  
live stream**

**Unsafe video  
detection**

**Celebrity  
recognition**



# Amazon Rekognition Video

## How It Works

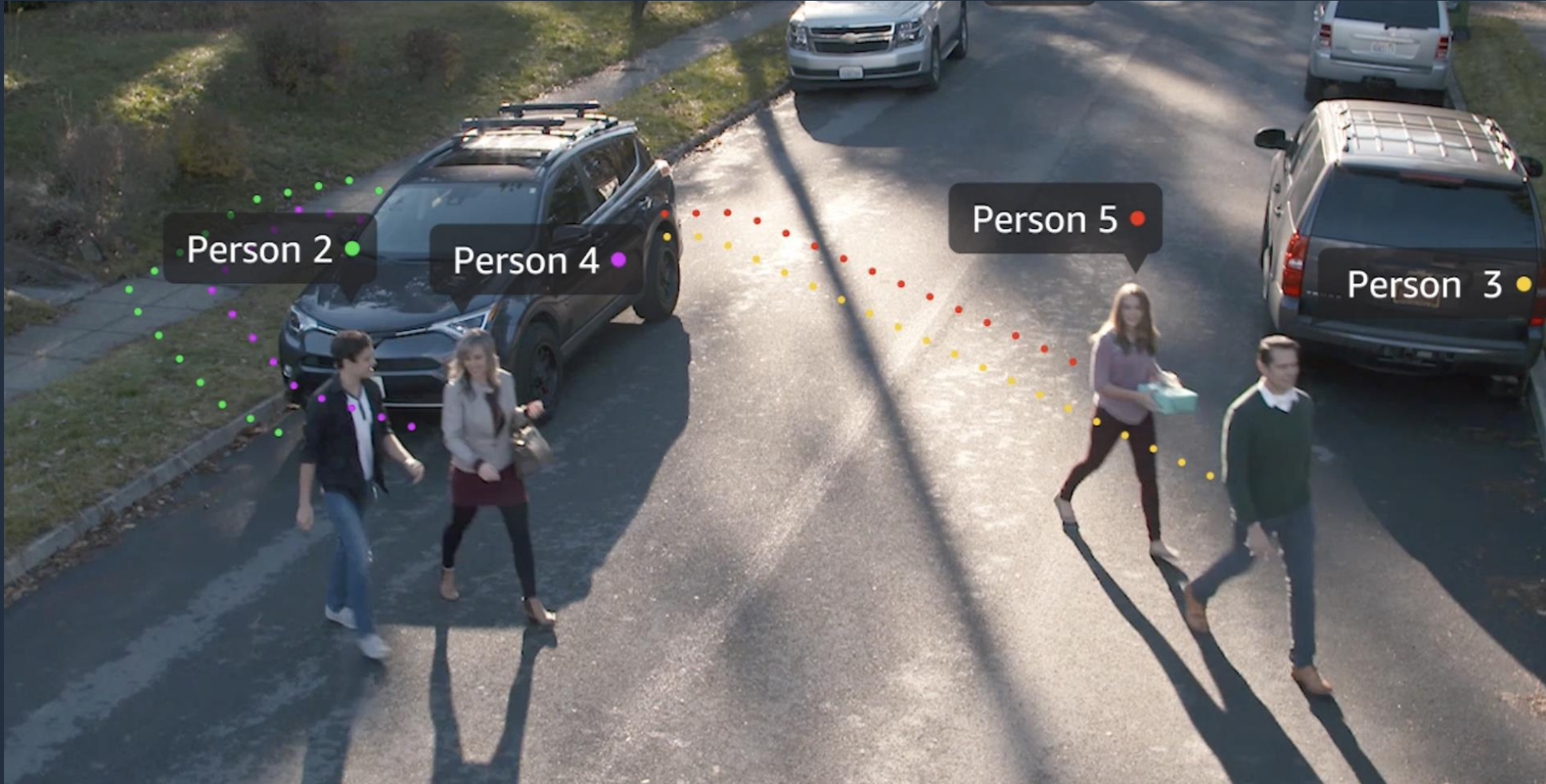






# Amazon Rekognition Video

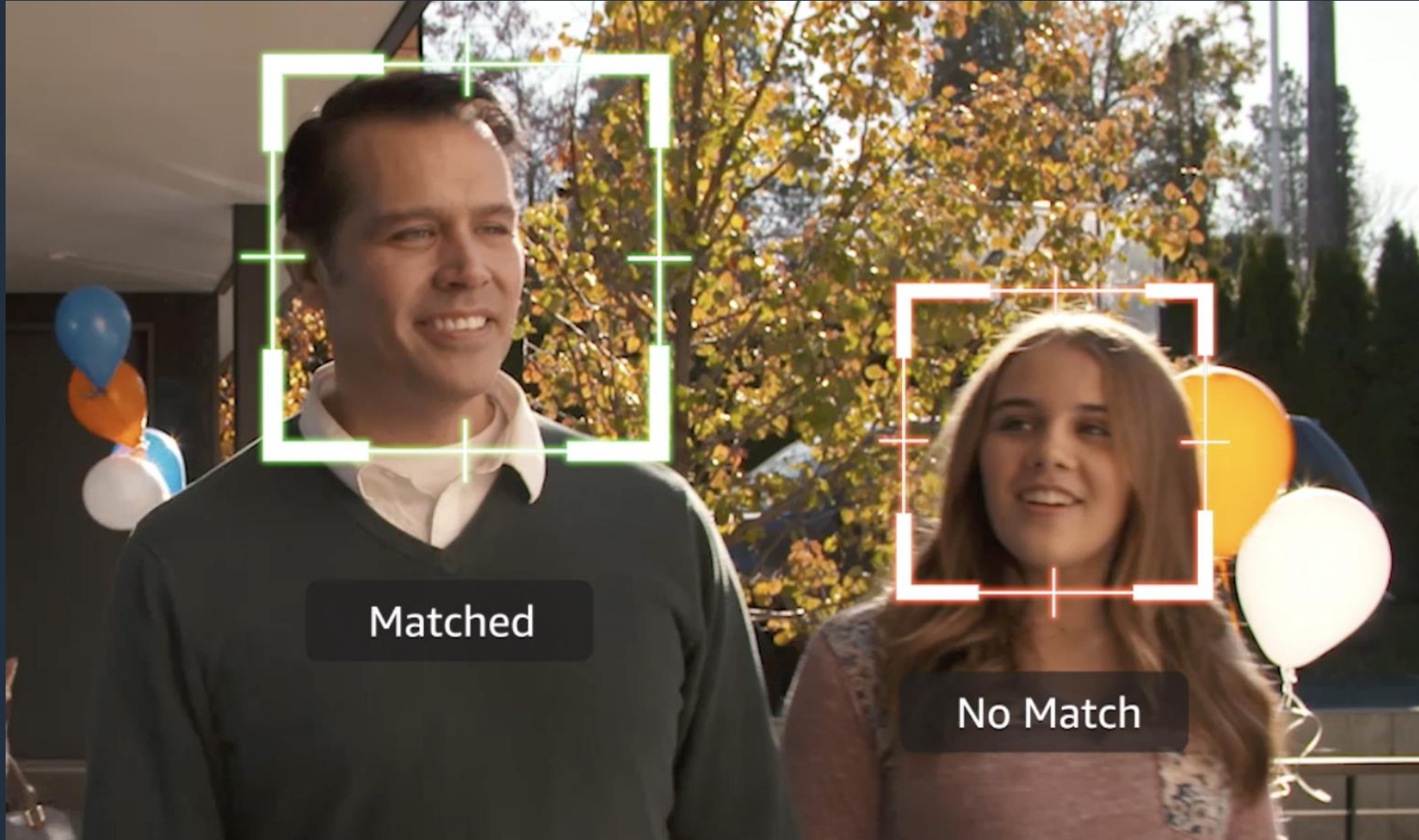
## Person Tracking





# Amazon Rekognition Video

## Face Search





# Amazon Rekognition Video

## Inappropriate Video Detection



Suggestive Content

Female Swimwear





# Amazon Rekognition Video

## Customer Reference

### THE TAKE

Identify and track actors across millions of frames of content

Allowing viewers to identify and buy the products they see on screen.







# Amazon Rekognition

## M&E Entertainment


## Automating Footage Tagging with Amazon Rekognition

Indexed 97,000 people

Saves ~9,000 hours a year in labor

APRIL 4, 2017

**Senate Republican Agenda** Following their weekly caucus lunch, Senate Republican leaders spoke to reporters. They criticized Democrats' plans to filibuster Judge Neil... [read more](#)



00:09 07:44 HD CC

[Clip](#) [Bookmark To MyC-SPAN](#) [Embed](#) [Share This Video](#)

Transcript type:  Filter by Speaker:  Search this transcript:

Text

00:00:05 **Mitch McConnell Jr.**  
>> GOOD AFTERNOON, EVERYONE. AS YOU KNOW WE'RE MOVING FORWARD WITH THE GORSUCH NOMINATION FOR THE SUPREME COURT THAT SHOULD BE WRAPPED UP SOME TIME...  
[Show Full Text](#)

00:00:59 **John Cornyn**  
>> I GOT TO THE SENATE IN 2002 AND IMMEDIATELY SENATOR SCHUMER AND DEMOCRATIC COLLEAGUES INSTITUTED THE IDEA OF FILIBUSTERING JUDGES. INTERESTINGLY...

**PEOPLE IN THIS VIDEO**

[John A. Barrasso M.D.](#)  
U.S. Senator (Class 1)  
[R] Wyoming

[John Cornyn](#)  
U.S. Senator (Class 2)  
[R] Texas

[More People](#)

**HOSTING ORGANIZATION**

[U.S. Senate | Ohio Clock](#)



# Amazon Rekognition

Deep learning-based image and video analysis service



**Image**



**Stored  
Video**

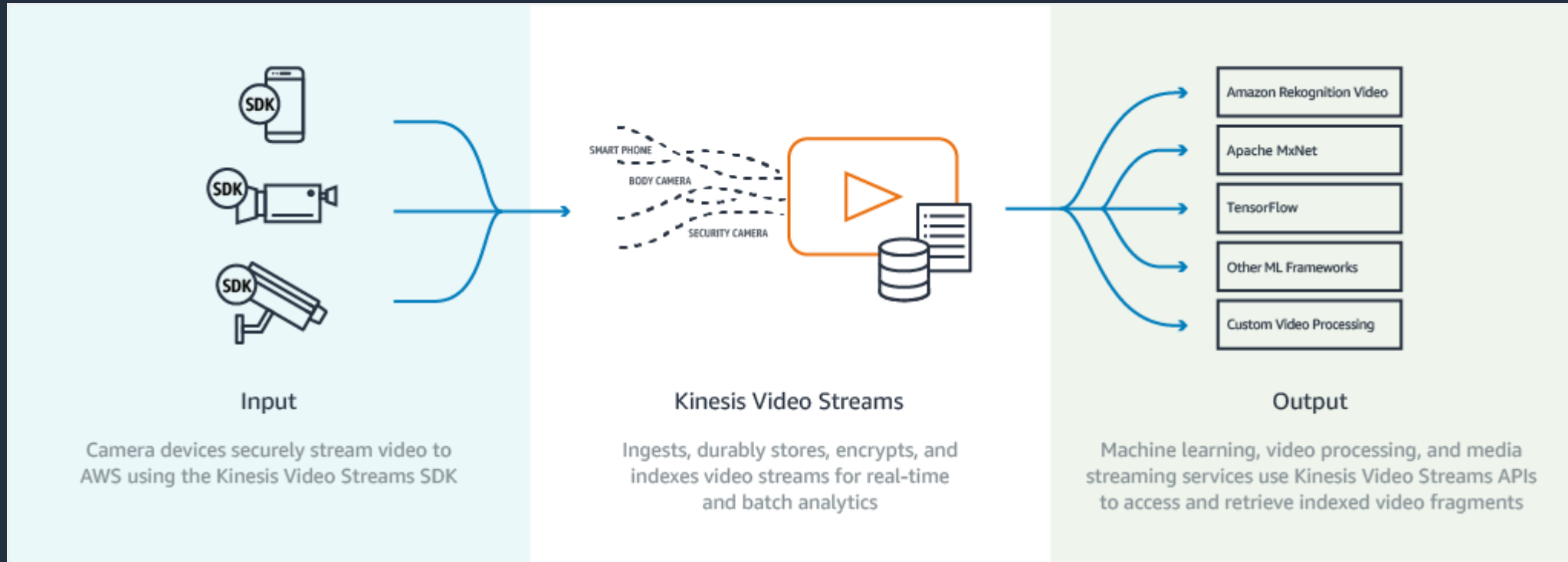


**Streaming  
Video**



# Amazon Rekognition Video

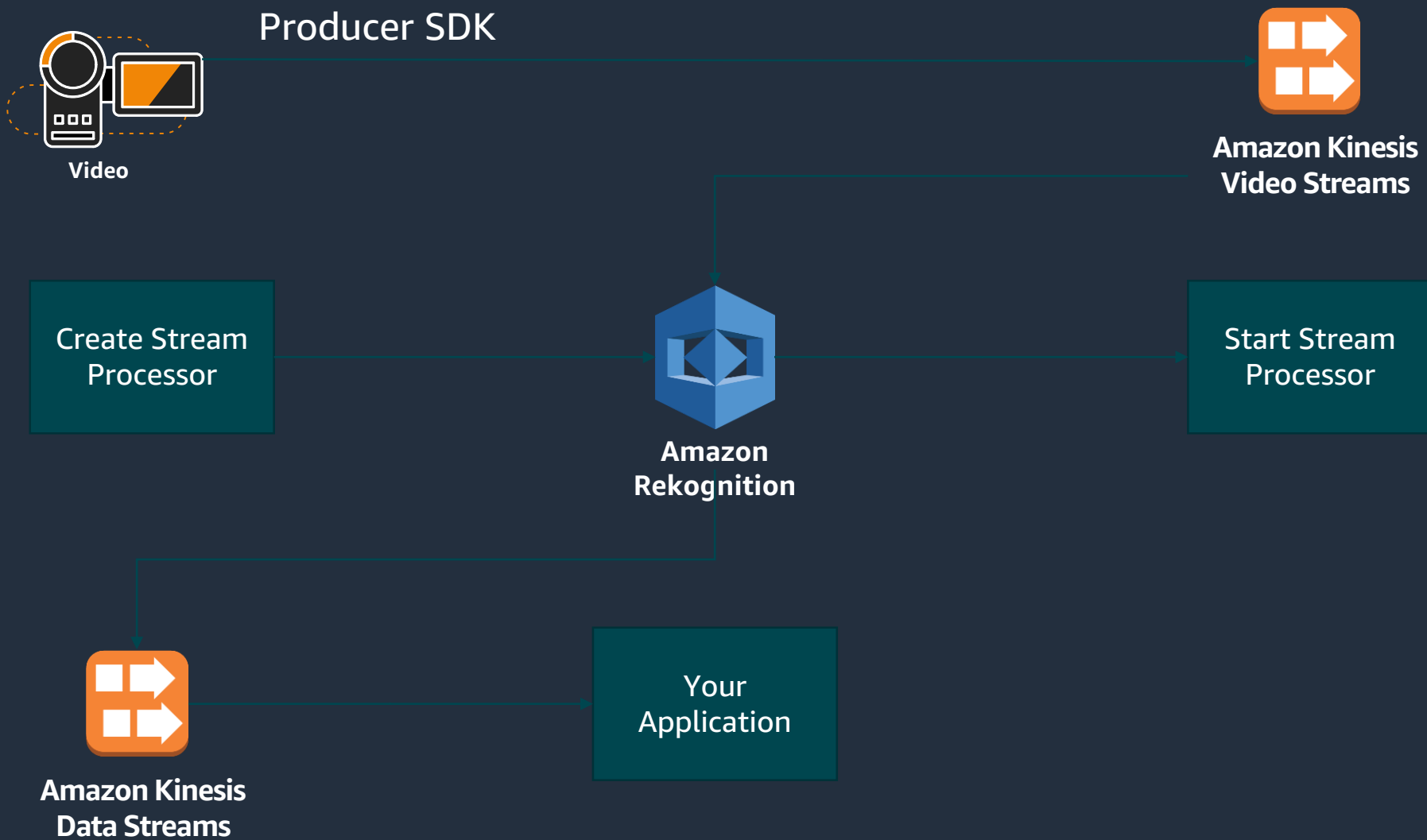
## Amazon Kinesis Video Streams





# Amazon Rekognition Video

## How It Works





# Amazon Rekognition Video

City of Orlando



Real-time detection and notification of persons-of-interests  
Increase public safety  
Operational efficiency opportunities





# Amazon Rekognition

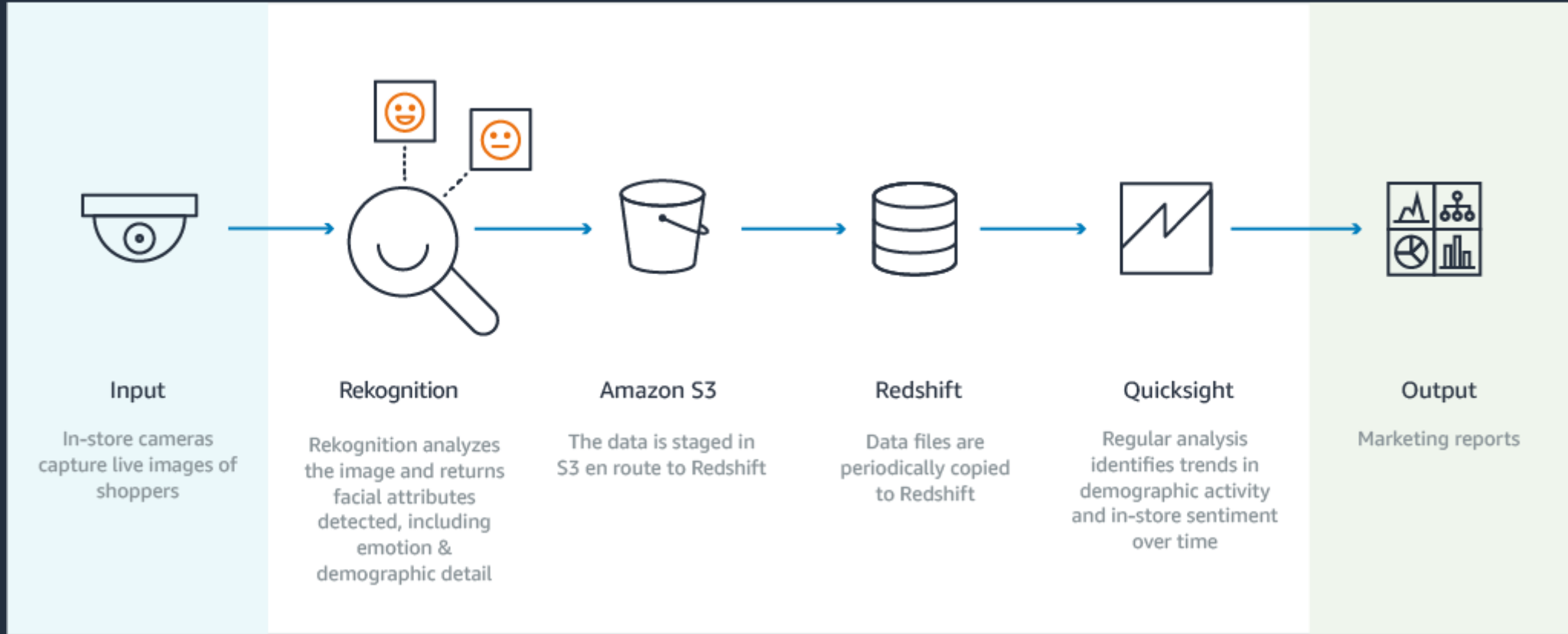
## Use Case: User Generated Content Auto Moderation





# Amazon Rekognition

## Use Case: Retail Store Sentiment Analysis





# Amazon Rekognition

## Get Started



Fully  
managed service



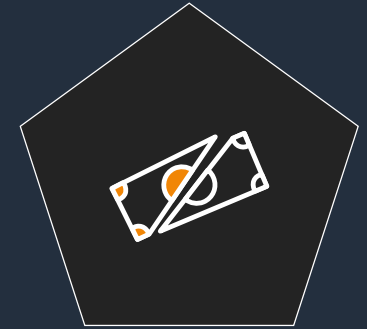
Image & Video  
Analysis



Easy-to-use  
API



Deep  
learning-based



Low Cost

# Working code examples

<https://github.com/aws-samples>



## Search for 'rekognition':

- **Smart image cropping Twitter bot**
- **Find missing persons using social media**
- **Automatic content moderation**
- **Serverless hotdog detection**
- **And more ...**

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