

INNOVATE

ONLINE CONFERENCE

MACHINE LEARNING
AND AI EDITION



AWS AI services for image and video analysis

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A software developer since I was 16

Developer for 20 years

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Amazon Rekognition features

Faces



Celebrities



Labels



Text



Moderation



Activities



Paths



Scenes



Object and scene detection

AWS Services Resource Groups Support thebeebs @ mbeeby N. Virginia

Amazon Rekognition Metrics Demos Object and scene detection Image moderation Facial analysis Celebrity recognition Face comparison Text in image Video Demos Video analysis Additional Resources Getting started guide Download SDKs Developer resources Pricing FAQ Forum

Object and scene detection

Rekognition automatically labels objects, concepts and scenes in your images, and provides a confidence score.

Done with the demo? [Learn more](#)

Results

Person	99.7 %
Human	99.7 %
Screen	97.8 %
Electronics	97.8 %
Indoors	97.4 %
Interior Design	97.4 %

[Show more](#)

Request

Response

Choose a sample image

Use your own image

Image must be .jpeg or .png format and no larger than 5MB. Your image isn't stored.

Upload or drag and drop

Use image URL Go

Face detection

AWS Services Resource Groups 🔍

thebeebz @ mbeeby N. Virginia Support

Amazon Rekognition

Metrics

Demos

Object and scene detection

Image moderation

Facial analysis

Celebrity recognition

Face comparison

Text in image

Video Demos

Video analysis

Additional Resources

Getting started guide

Download SDKs

Developer resources

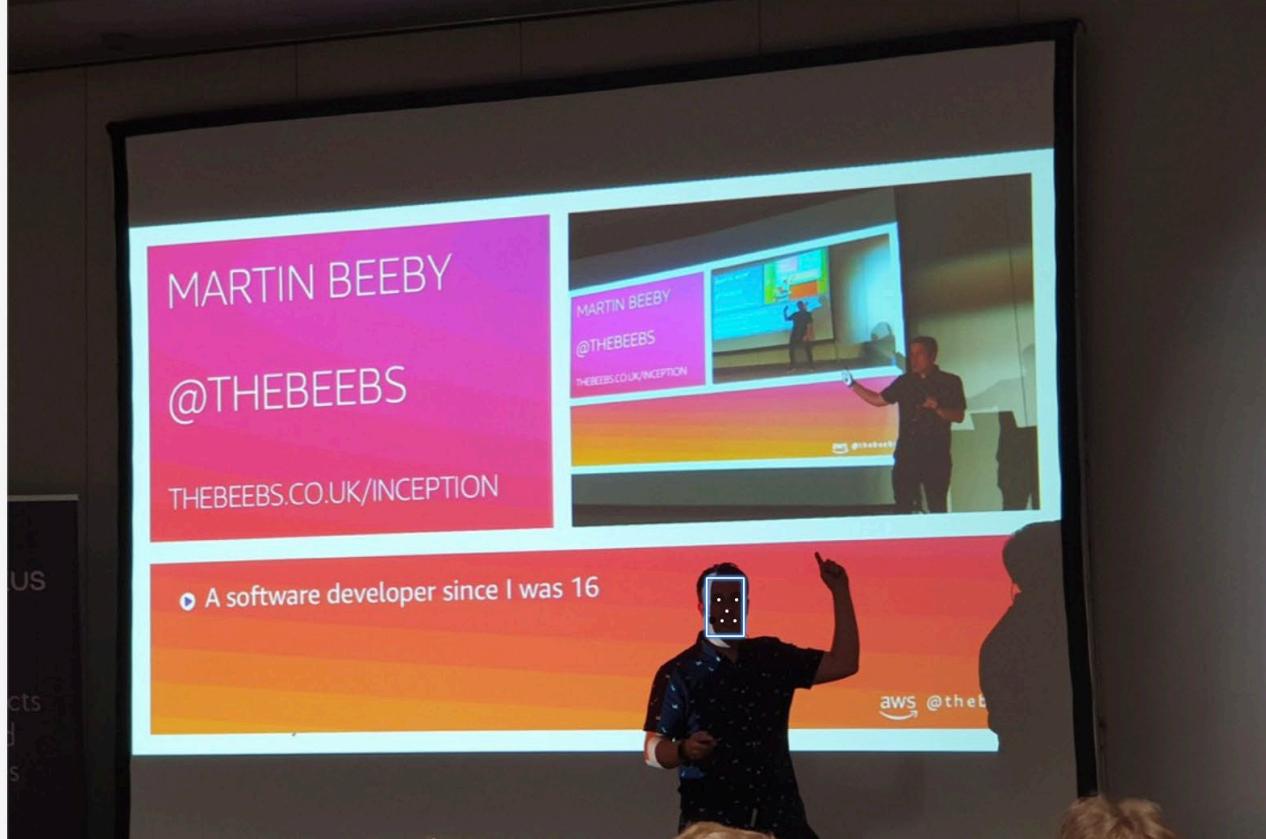
Pricing

FAQ

Forum

Facial analysis

Get a complete analysis of facial attributes, including confidence scores.



Done with the demo? [Learn more](#)

Results

	looks like a face	99.9 %
	appears to be male	54.8 %
	age range	33 - 49 years old
	not smiling	53.8 %
	appears to be calm	50.2 %
	not wearing glasses	54.7 %

[Show more](#)

Request

Response

Choose a sample image



Use your own image

Image must be .jpeg or .png format and no larger than 5MB. Your image isn't stored.

or drag and drop

Use image URL

Face detection, analysis, and recognition

Pose



Lighting



Blur and occlusion



JSON payload



```
[{"FaceDetails": {  
    "BoundingBox": {  
        "Width": 0.03080648183822632,  
        "Height": 0.07175196707248688,  
        "Left": 0.5538854598999023,  
        "Top": 0.6836297512054443  
    },  
    "AgeRange": {  
        "Low": 33,  
        "High": 49  
    },  
    "Smile": {  
        "Value": false,  
        "Confidence": 53.84665298461914  
    },  
    "Eyeglasses": {  
        "Value": false,  
        "Confidence": 54.79061508178711  
    },  
    "Sunglasses": {  
        "Value": false,  
        "Confidence": 54.91919708251953  
    },  
    "Gender": {  
        "Value": "Male",  
        "Confidence": 54.88749694824219  
    },  
    "Beard": {  
        "Value": true,  
        "Confidence": 50.22010040283203  
    },  
    "Mustache": {  
        "Value": false,  
        "Confidence": 54.20974349975586  
    },  
    "EyesOpen": {  
        "Value": true,  
        "Confidence": 54.90037155151367  
    },  
    "MouthOpen": {  
        "Value": false,  
        "Confidence": 52.512420654296875  
    }},  
    "Emotions": [  
        {"Type": "ANGRY",  
        "Confidence": 46.19324493408203},  
        {"Type": "CALM",  
        "Confidence": 50.27156448364258},  
        {"Type": "SURPRISED",  
        "Confidence": 45.84552764892578},  
        {"Type": "DISGUSTED",  
        "Confidence": 45.296348571777344},  
        {"Type": "FEAR",  
        "Confidence": 45.13093948364258},  
        {"Type": "CONFUSED",  
        "Confidence": 45.26441955566406},  
        {"Type": "HAPPY",  
        "Confidence": 46.28559875488281},  
        {"Type": "SAD",  
        "Confidence": 45.71235656738281},  
    ],  
    "Landmarks": [  
        {"Type": "eyeLeft",  
        "X": 0.5640926361083984,  
        "Y": 0.7115896344184875},  
        {"Type": "eyeRight",  
        "X": 0.5776823163032532,  
        "Y": 0.7105998396873474}  
    ]}
```

Celebrity detection



Done with the demo?
[Learn more](#)

▼ Results

No celebrity faces recognized

► Request

► Response

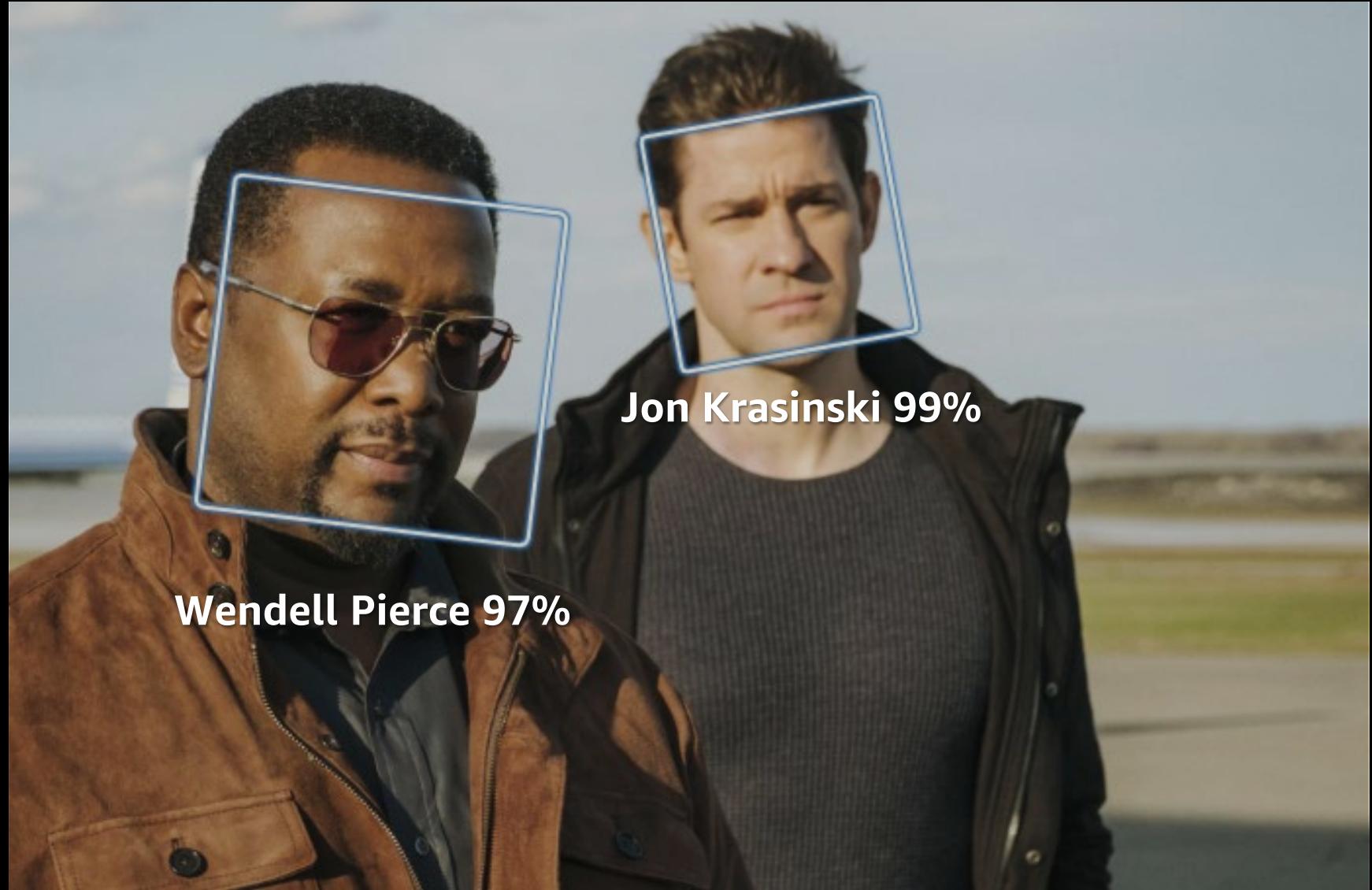
Choose a sample image



Use your own image
Image must be .jpeg or .png format and no larger than 5MB. Your image isn't stored.

or drag and drop

Celebrity detection



Amazon Rekognition quickly identifies well-known people in your video and images

Continually updated set of public celebrities who can be recognized

Text in the wild



Extract text content from real-world images in various layouts, fonts, and styles

New! Expanded support for text rotated -90 to +90 degrees from the horizontal axis

Amazon Rekognition

Metrics

Demos

Object and scene detection

Image moderation

Facial analysis

Celebrity recognition

Face comparison

Text in image

Video Demos

Video analysis

Additional Resources

Getting started guide

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Developer resources

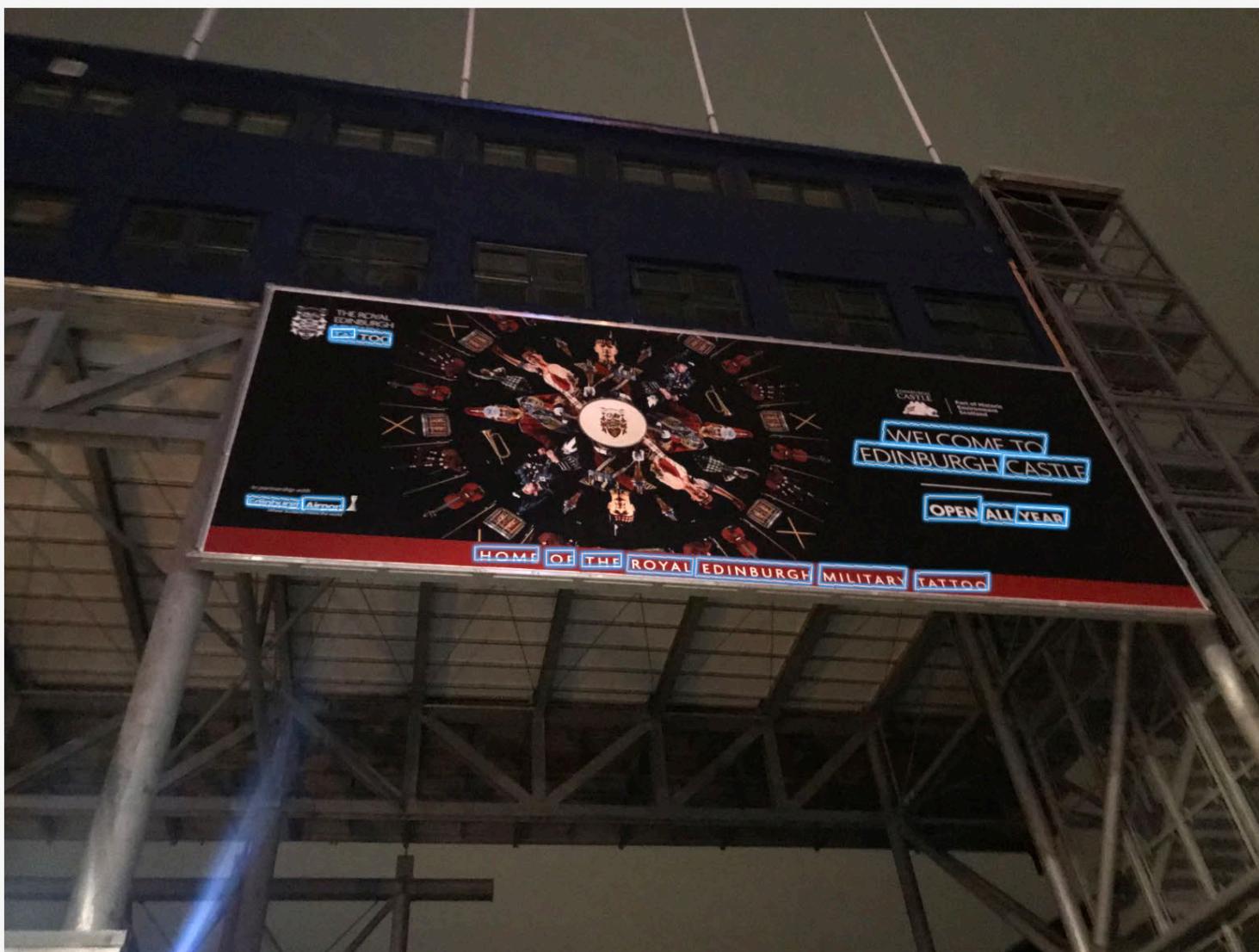
Pricing

FAQ

Forum

Text in image

Rekognition automatically detects and extracts text in your images. [Learn More](#)



Done with the demo?

[Learn more](#)

US English only

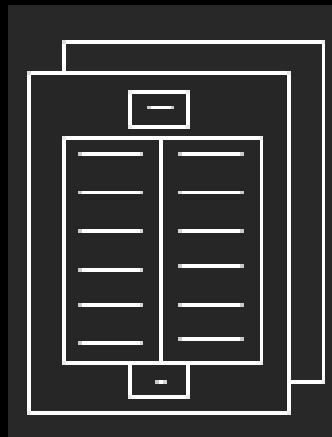
▼ Results

| TATTOO | TAT |
| WELCOMETO |
| EDINBURGH | CASTLE |
| Edinburgh |
| Airport |
OPEN	ALLYEAR	YEAR	
HOME	OF	THE	
ROYAL	EDINBURGH	MILITARY	TATTOO

► Request

► Response

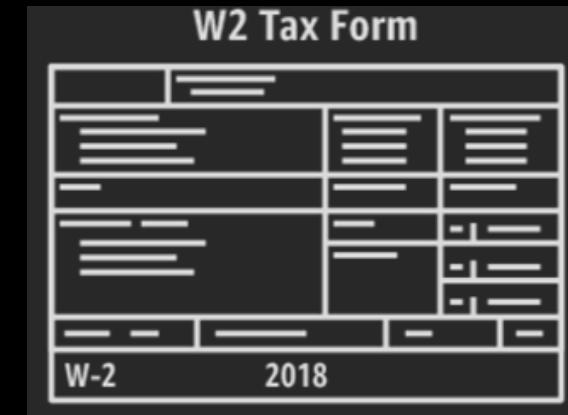
Amazon Textract



Text extraction



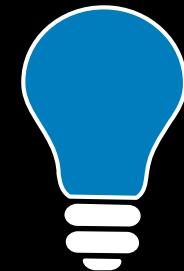
Table extraction



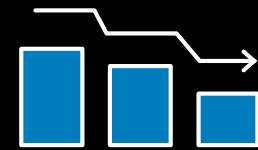
Form extraction

Amazon Rekognition benefits

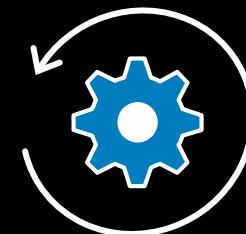
State-of-the-art capabilities



Low cost



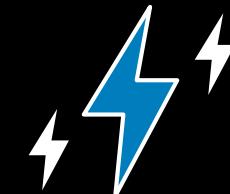
Continuous improvement



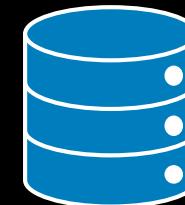
Serverless



Rapid integration



Your data
is your own



Amazon Rekognition customers



Amazon Rekognition customers



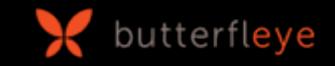
News UK

C-SPAN



tinder

Sky News



SCALEABOUT



THE TAKE



shaadi.com

paylater

krome PHOTOS.



wia



*FIDO
CONNECT TO CASH



Sygic



Use cases and features

Media discovery



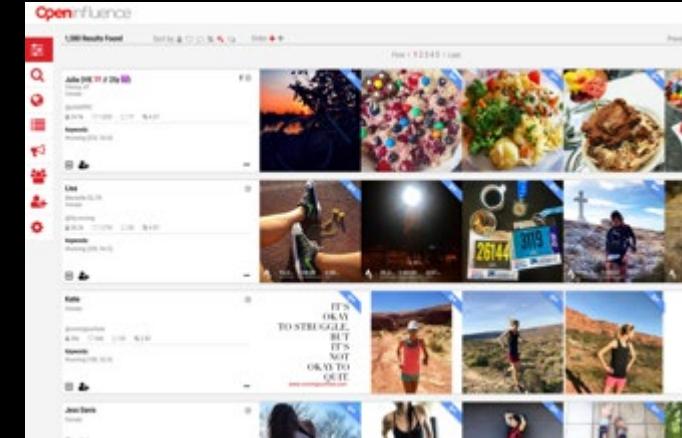
Live
events



Media
libraries

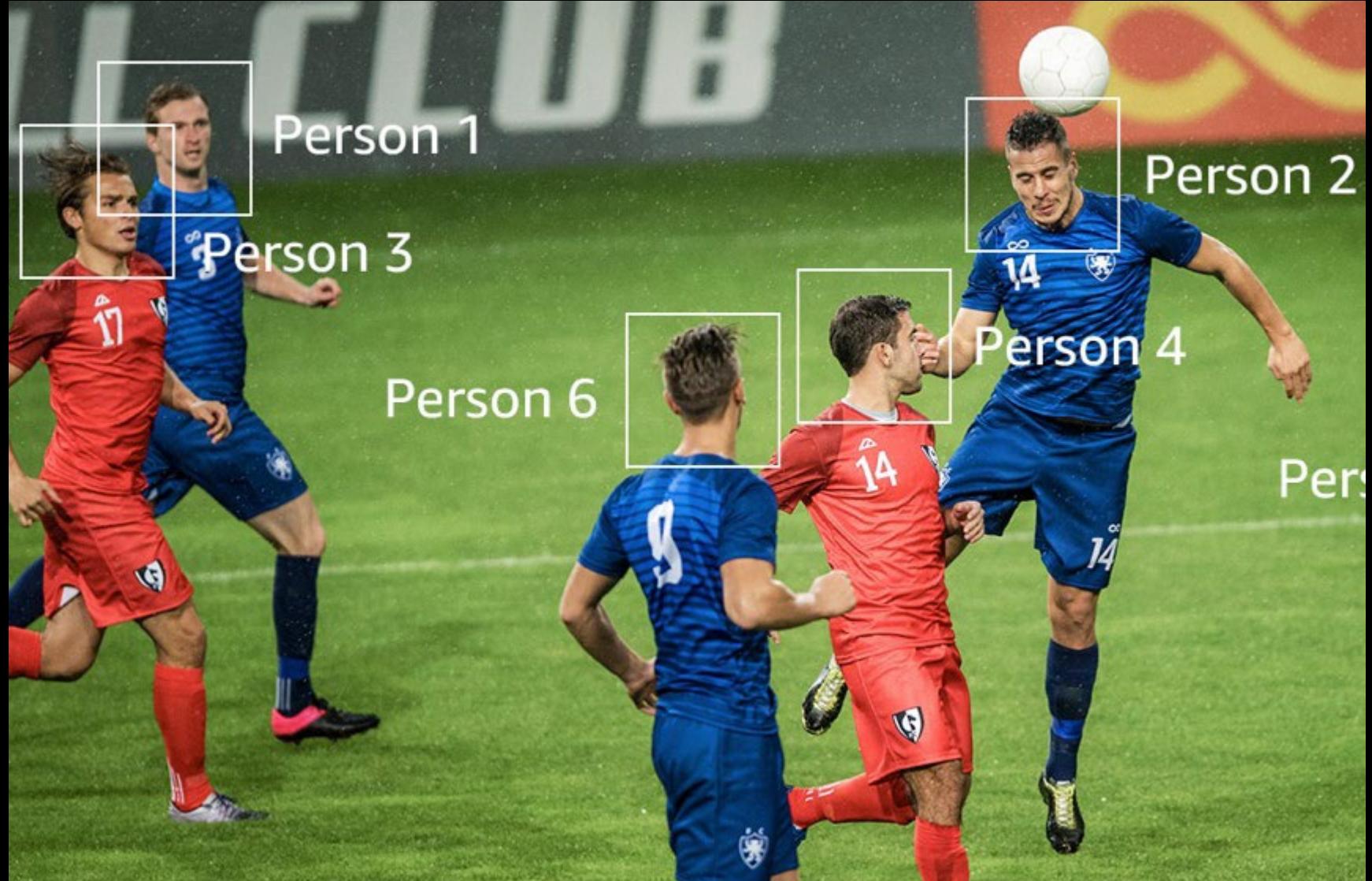


Social
media



Influencer
marketing

Activities and paths



When analyzing video, you can also identify specific activities such as “playing football”

You can also capture the path of people or objects in the scene



Demo: Activities and paths

[Home](#) [UK](#) [World](#) [Politics](#) [US](#) [Ocean Rescue](#) [Science & Tech](#) [Business](#) [Ents & Arts](#) [Offbeat](#) [Weather](#)

ARRIVALS

EARL SPENCER

COUNTESS SPENCER

Name tags

PROFILES

Idris Elba

Sabrina Dhowre

Countess Spencer

Earl Spencer

Dean Stott

Amazon Rekognition for content moderation

Top-level category	Second-level category	Confidence score
Explicit nudity	Nudity	XX.X%
	Graphic male nudity	XX.X%
	Graphic female nudity	XX.X%
	Sexual activity	XX.X%
	Partial nudity	XX.X%
Suggestive	Female swimwear or underwear	XX.X%
	Male swimwear or underwear	XX.X%
	Revealing clothes	XX.X%

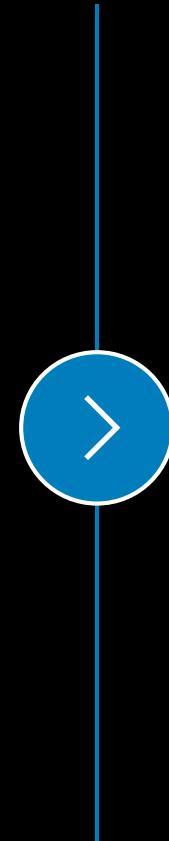
Amazon Rekognition does not flag content as “safe” or “unsafe”

Instead, you get granular output about the nature of the content—you can apply your own policies that define what is safe for your customers

How to get started with Amazon Rekognition

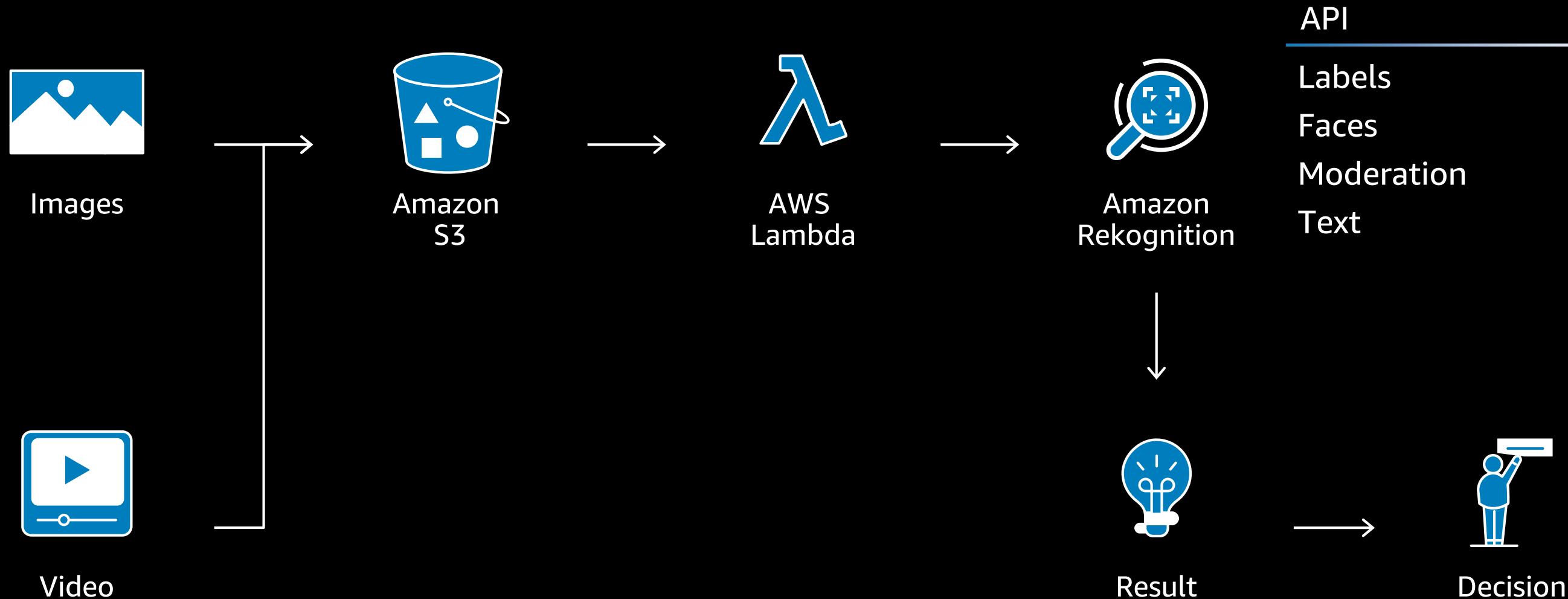
Try Amazon Rekognition now with just a few clicks

<http://console.aws.amazon.com/rekognition> (Signing up for a limited-time Free Tier account is required)



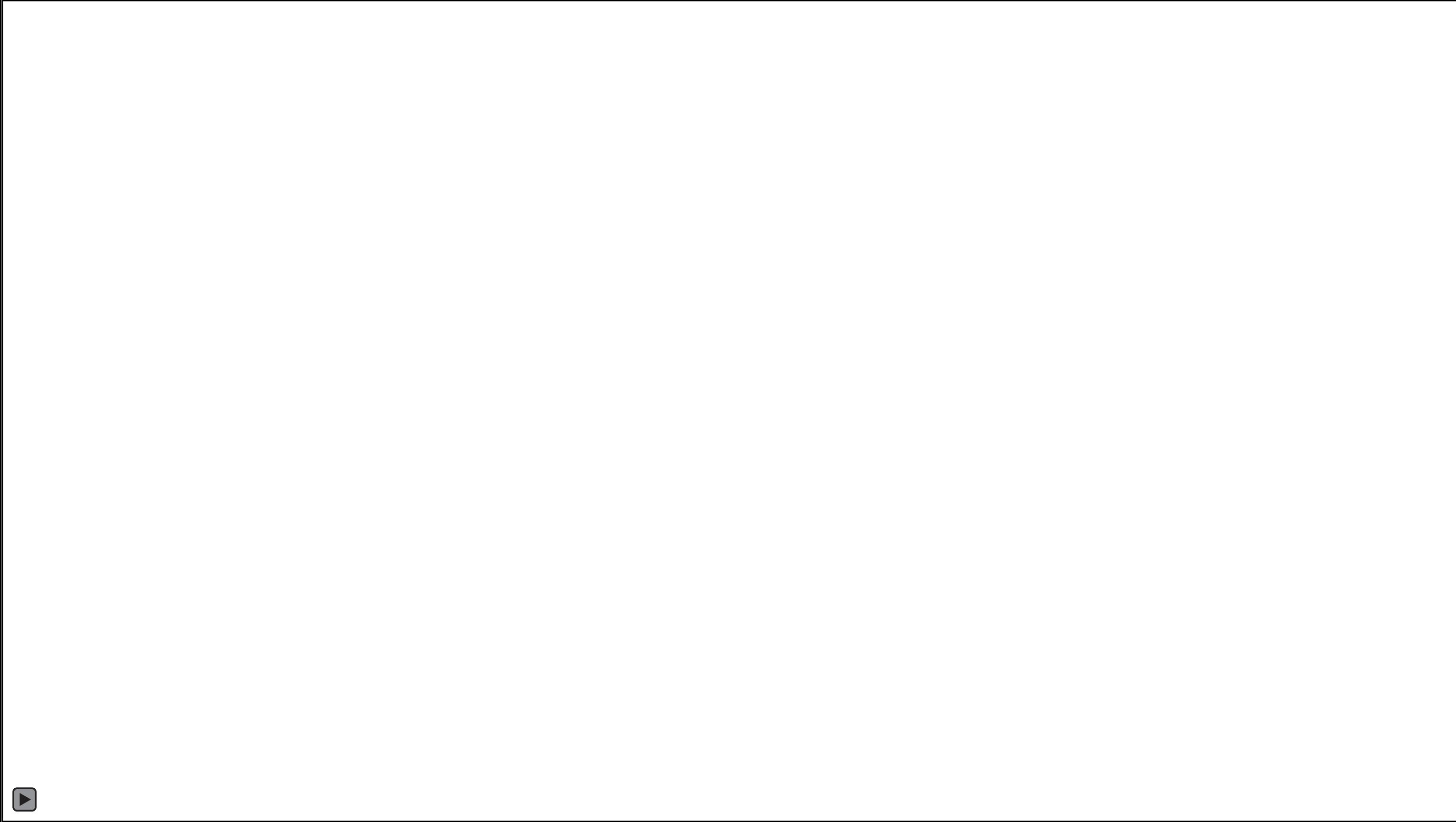
Person	93.4 %
Human	93.4 %
Nature	88.5 %
Outdoors	88.2 %
Mammal	79.8 %
Animal	79.8 %
Rock	79.7 %
Canine	69.3 %
Plateau	67 %
Cliff	65.7 %
Pet	65 %
Mountain	58.3 %
Mountain Range	58.3 %
Wilderness	57.9 %

Amazon Rekognition reference architecture





Demo: AWS Lambda and Amazon Rekognition



Lambda S3

```
public async Task FunctionHandler(S3Event input, ILambdaContext context)  
{  
    foreach(var record in input.Records) {  
    }  
}
```

Detect Async

```
var detectResponses = await this.RekognitionClient.DetectLabelsAsync(new DetectLabelsRequest
{
    MinConfidence = MinConfidence,
    Image = new Image
    {
        S3Object = new Amazon.Rekognition.Model.S3Object
        {
            Bucket = record.S3.Bucket.Name,
            Name = record.S3.Object.Key
        }
    }
});
```

Get labels

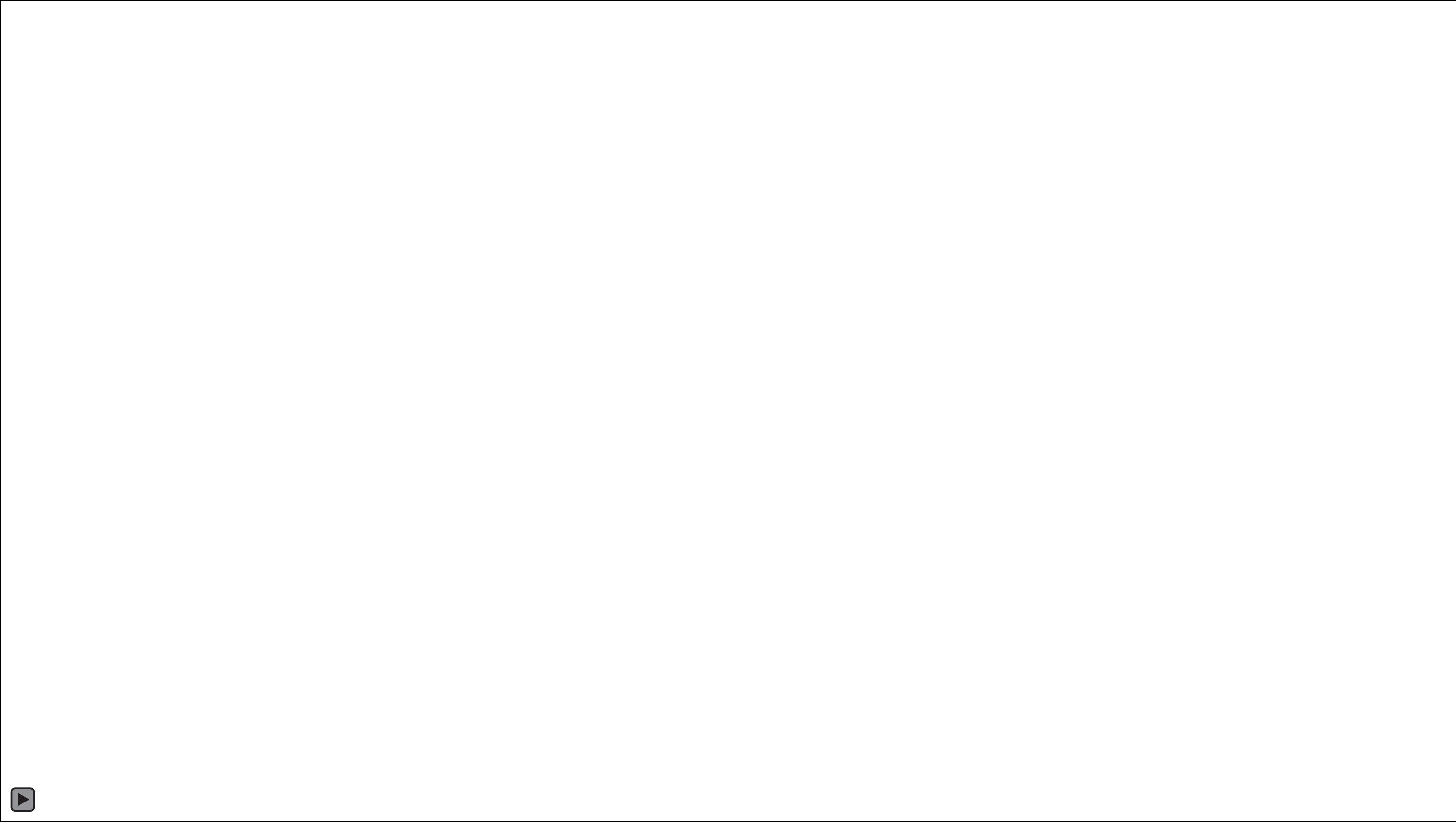
```
var tags = new List<Tag>();
foreach(var label in detectResponses.Labels)
{
    if(tags.Count < 10)
    {
        Console.WriteLine($"\\tFound Label {label.Name} with confidence {label.Confidence}");
        tags.Add(new Tag { Key = label.Name, Value = label.Confidence.ToString() });
    }
    else
    {
        Console.WriteLine($"\\tSkipped label {label.Name} with confidence {label.Confidence} because the maximum number of labels was reached");
    }
}
```

Add tags to S3 objects

```
await this.S3Client.PutObjectTaggingAsync(new PutObjectTaggingRequest  
{  
    BucketName = record.S3.Bucket.Name,  
    Key = record.S3.Object.Key,  
    Tagging = new Tagging  
    {  
        TagSet = tags  
    }  
});
```

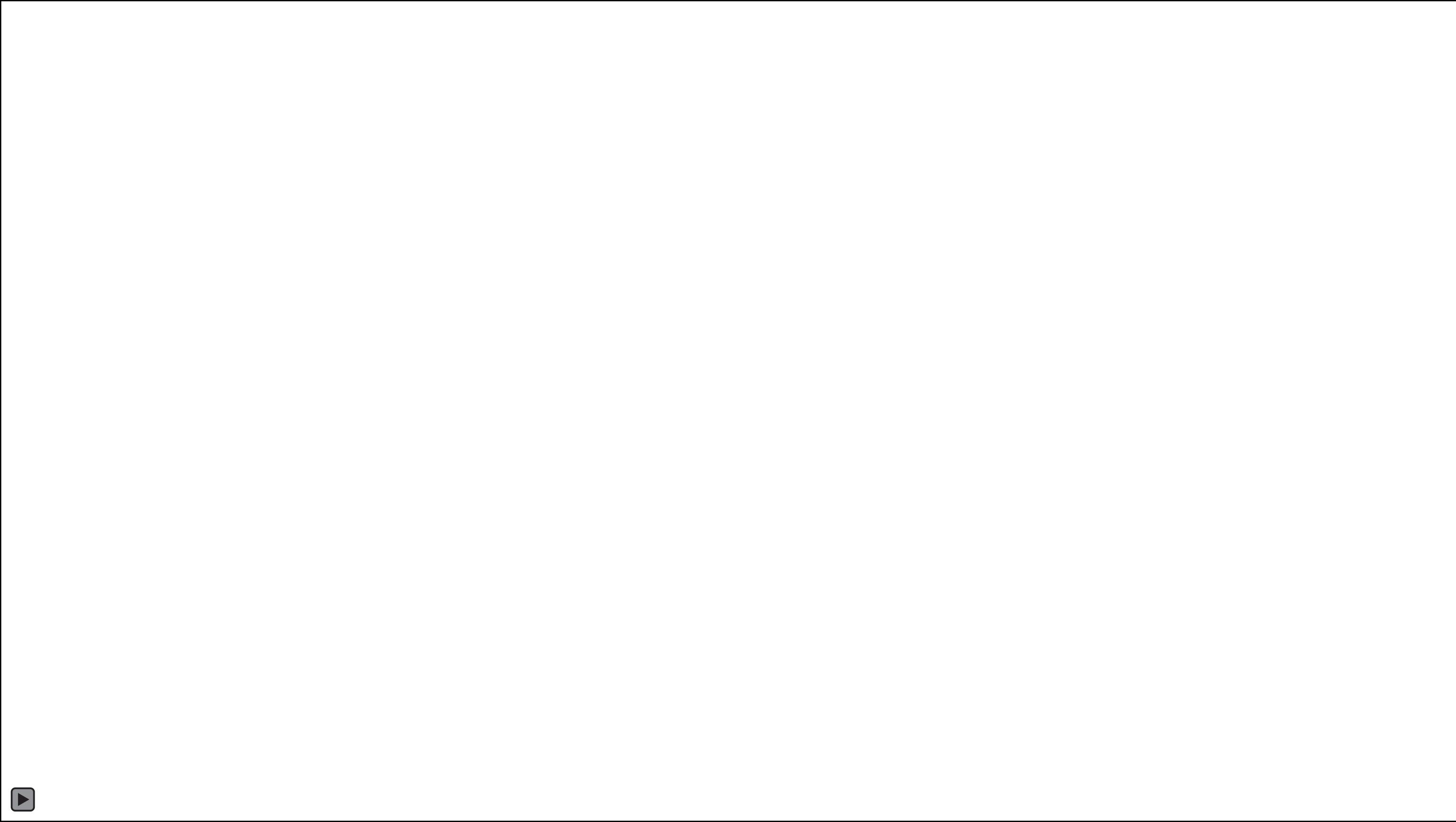


Lambda add role





Add bucket to Lambda





Upload image to S3 to trigger function





S3 Bucket: abucketforthebeebz Function: demoColdStarts

Upload File Upload Folder Create Folder Refresh

abucketforthebeebz Fetched 0 Items (Cancel)

Filter:

Name	Size	Last Modified Date	Storage Class
..	--		
demoimage.mp4	3,728,059 bytes		

Properties: demoimage.mp4

Bucket: abucketforthebeebz

Folder:

Name: demoimage.mp4

Link: <https://abucketforthebeebz.s3.eu-west-1.amazonaws.com/demoimage.mp4>

Use Reduced Redundancy Storage

Use Server Side Encryption

Redirect Location:

Metadata Permissions Tags

Add Remove

Tag Name	Value
Shelf	99.7
Furniture	99.7
Person	99.0
Human	99.0
Chair	93.1
Camera	92.3
Indoors	89.6
Bookcase	87.5
Monitor	85.4

OK Cancel

100 %

Clear

Title Status

Uploaded demoimage.mp4 3,728,059 / 3,728,059 Bytes

Delete 1 File(s) 1 / 1 Deleted files

Uploaded demoimage.mp4 3,728,059 / 3,728,059 Bytes

Solution Explorer

Solution 'AWSLambda1' (1 of 1 project)

- AWSLambda1
 - Dependencies
 - Properties
 - aws-lambda-tools-defaults.json
 - Function.cs
 - Readme.md

Solution Explorer Team Explorer

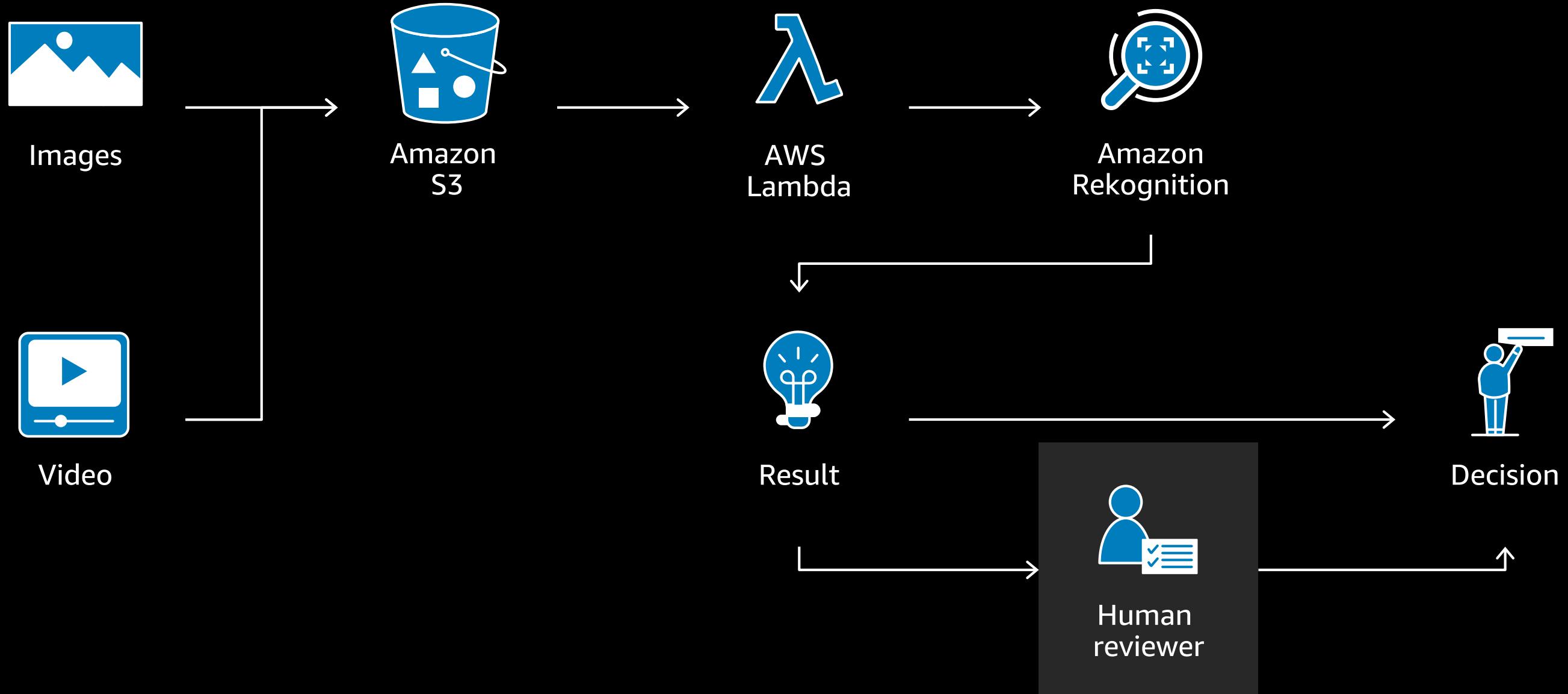
Properties

Output

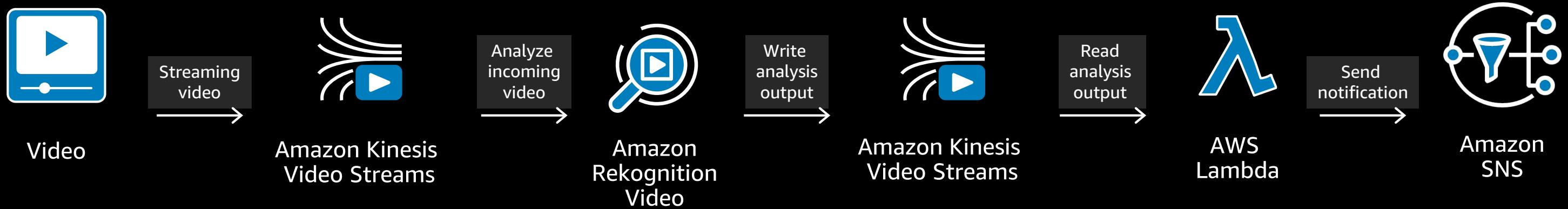
Show output from: Amazon Web Services

... zipping: AWSLambda1.runtimeconfig.json

Amazon Rekognition with humans in the loop



Amazon Rekognition for streaming video



Amazon Rekognition Regions





Thank you!

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