

How to get the most out of Amazon Rekognition Video

Deep-learning based Video analysis service

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23rd January, 2018

Amazon Rekognition Image



Fully
managed service



Image
analysis



Easy-to-use
API



Deep
learning-based



Low cost

Amazon Rekognition Image



Object and
scene
detection



Face
detection
and analysis



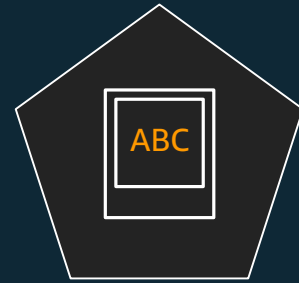
Face
recognition



Unsafe
image
detection



Celebrity
recognition



Text in image

Videos

Universal, ubiquitous, and essential



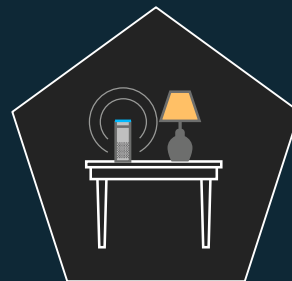
**Media and
entertainment**

*Video-on-demand viewers
are expected to reach 209
million by 2021 globally*



Public safety

*Expected to grow to 859
PB created/day*



Smart home

*US: 45 Million Smart
Home systems will be
in use by 2018*

Video analysis

Necessity



Enhance overall business safety and security



Improve business operations and productivity



Improve customer experience and grow loyalty



Improve personal and family security

Video Analysis

Limitations of traditional solutions



Manually intensive



Slow and error-prone



Expensive

Current solutions

C-SPAN



Video



Frame selection



Amazon Rekognition Image

Limitations



Image analysis



Temporal information lost



Motion context lost

NEW!

Amazon Rekognition Video Features



Object and activity
Detection



Person tracking



Face detection
and recognition



Real-time
live stream



Unsafe video
detection



Celebrity
recognition



Amazon Rekognition Video

One solution for all



Stored video
Amazon S3



Video live stream
Amazon Kinesis video stream

Media search index
Unsafe video detection
Investigative analysis

Public safety immediate response
Home monitoring

DEMO 1

Media - Search Index of Video

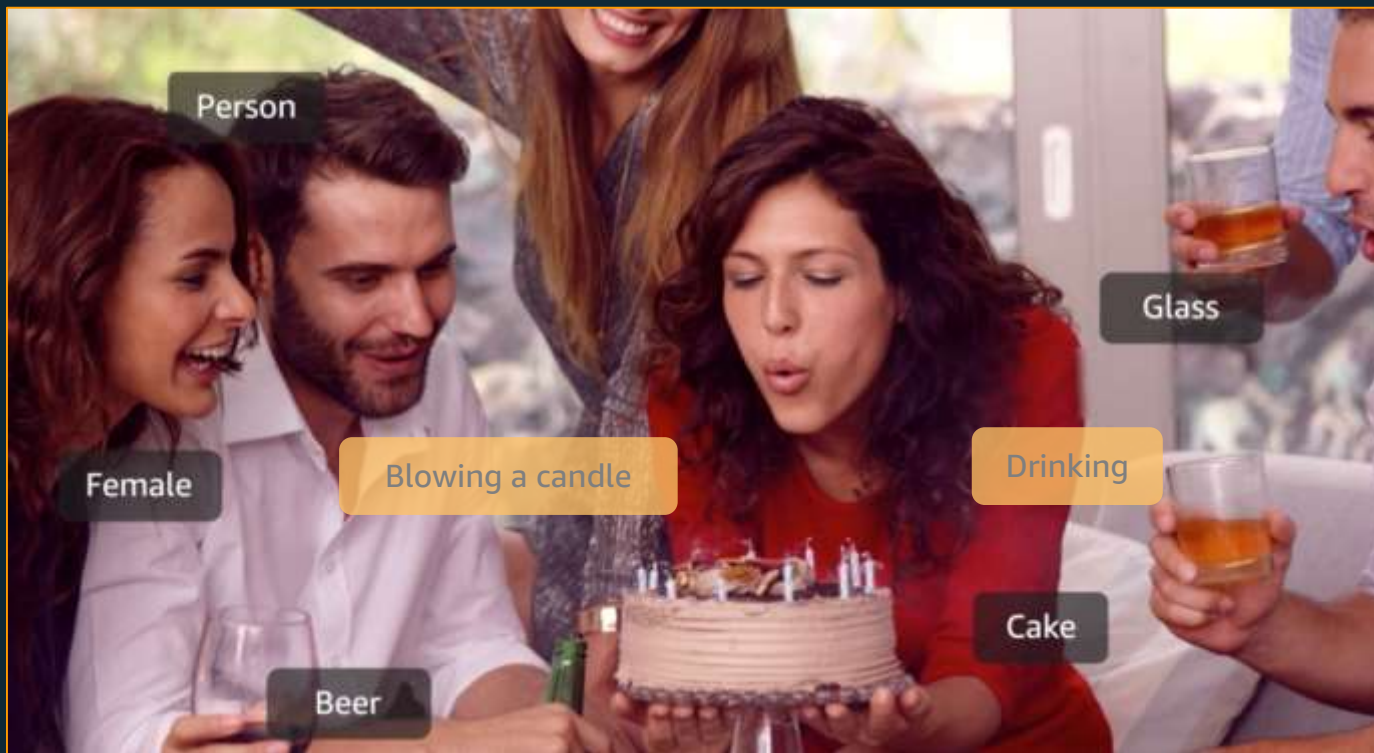
Smartphone Video

00:05:00



Amazon Rekognition Video

Object, Scene and Activity Detection



Amazon Rekognition Video

Object, Scene and Activity Detection



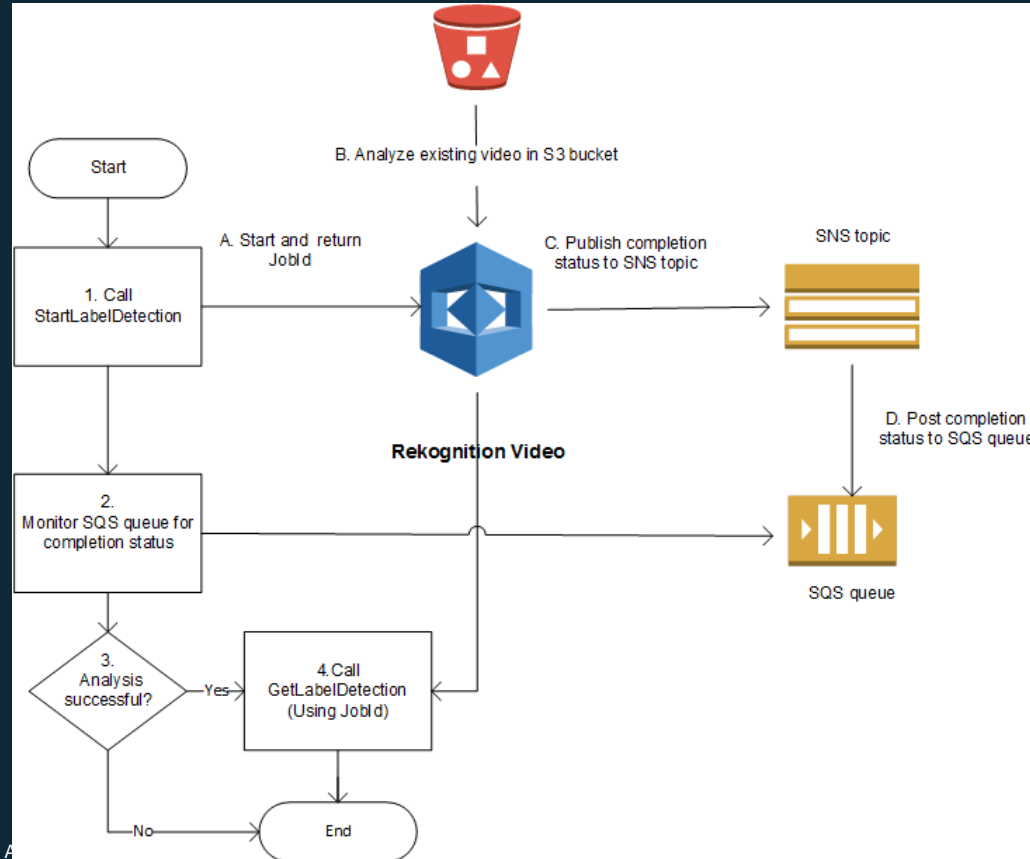
StartLabelDetection

GetLabelDetection

```
{
  "JobStatus": string,
  "StatusMessage": string,
  "VideoMetadata": {
    "Format": string,
    "Codec": string,
    "DurationMillis": number,
    "FrameRate": float,
    "FrameWidth": number,
    "FrameHeight": number
  },
  "NextToken": string,
  "Labels": [
    {
      "Timestamp": number,
      "Label": {
        "Name": string,
        "Confidence": float
      }
    }
  ],
  ...
}
```

Amazon Rekognition Video


Async Workflows



DEMO 2

Public Safety – Investigative Analysis

Traffic Cam 352 - Riverview West

 Northbound

 03:15:05:41

Mon. Nov 27, 2017

Amazon Rekognition Video

Person Tracking



Amazon Rekognition Video

Person Tracking



StartPersonTracking

GetPersonTracking

```
"Persons": [  
  {  
    "Timestamp": number,  
    "Person":  
    {  
      "Index": number,  
      "BoundingBox":  
      {  
        "Width": number,  
        "Top": number,  
        "Height": number,  
        "Left": number  
      },  
      "Face":  
      {  
        "BoundingBox": { ... },  
        "Landmarks": { ... },  
        "Pose": { ... },  
        "Quality": { ... },  
        "Confidence": number  
      }  
    },  
    ...  
  ],  
  ...  
],  
...
```

DEMO 3

Smart Home – Live Stream Face Recognition

LIVE STREAMING ●
Front Door Camera 1



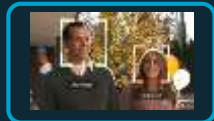
Amazon Rekognition Video

Face Search



Amazon Rekognition Video

Face Search



StartFaceSearch

GetFaceSearch

```
"Persons": [
  {
    "Timestamp": number,
    "Person": {
      "Index": number,
      "BoundingBox": { ... },
      "Face": {
        "BoundingBox": { ... },
        "Landmarks": { ... },
        "Pose": { ... },
        "Quality": { ... },
        "Confidence": number
      }
    }
  },
  "FaceMatches": [
    {
      "Face": {
        "BoundingBox": { ... },
        "FaceId": string,
        "ImageId": string,
        "ExternalImageId": string,
        "Confidence": number
      },
      "Similarity": number
    }
  ]
}
```

Amazon Rekognition Video

Stream Processor



CreateStreamProcessor

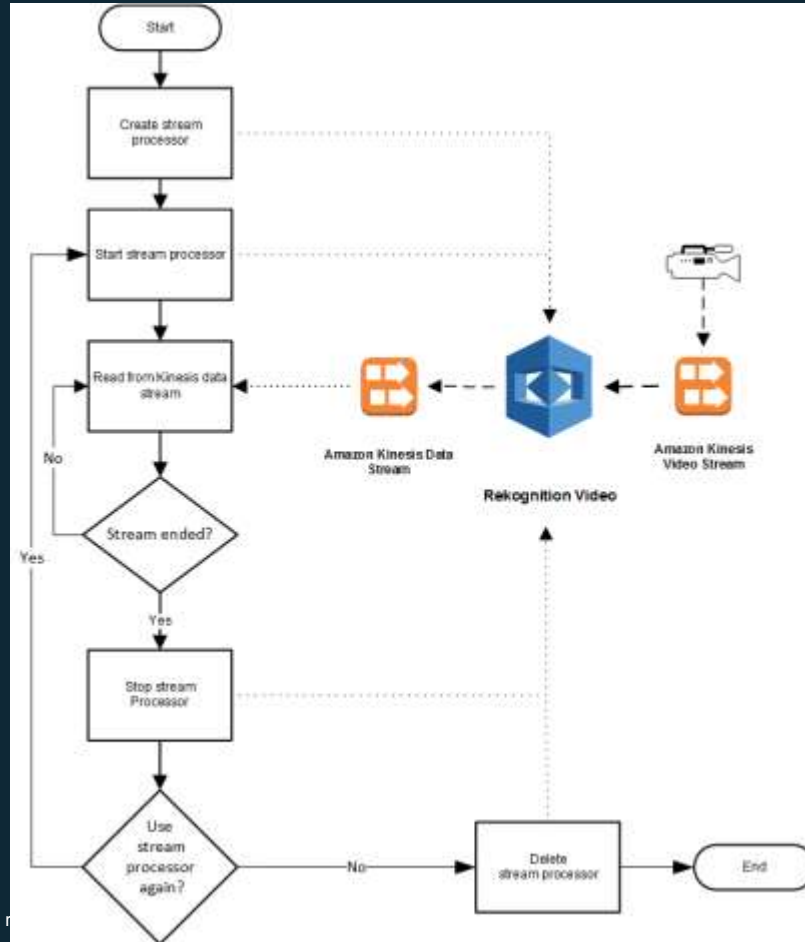
StartStreamProcessor

StopStreamProcessor

```
"InputInformation": {
  "KinesisVideo": {
    "StreamArn": "string"
    "FragmentNumber": "string",
    "ServerTimestamp": number,
    "ProducerTimestamp": number,
    "Frameoffset": number
  },
  "StreamProcessorInformation": {
    "Status": "string"
  }
}
"FaceSearchResponse": [
  {
    "DetectedFace": {},
    "MatchedFaces": [
      {
        "Similarity": float
        "FaceId": "string",
        "ExternalImageId": "string",
        "Confidence": float
      }
    ]
  }
]
```

Amazon Rekognition Video

Live Stream



Amazon Rekognition Video

Celebrity Recognition



Amazon Rekognition Video

Celebrity Recognition



StartCelebrityRecognition



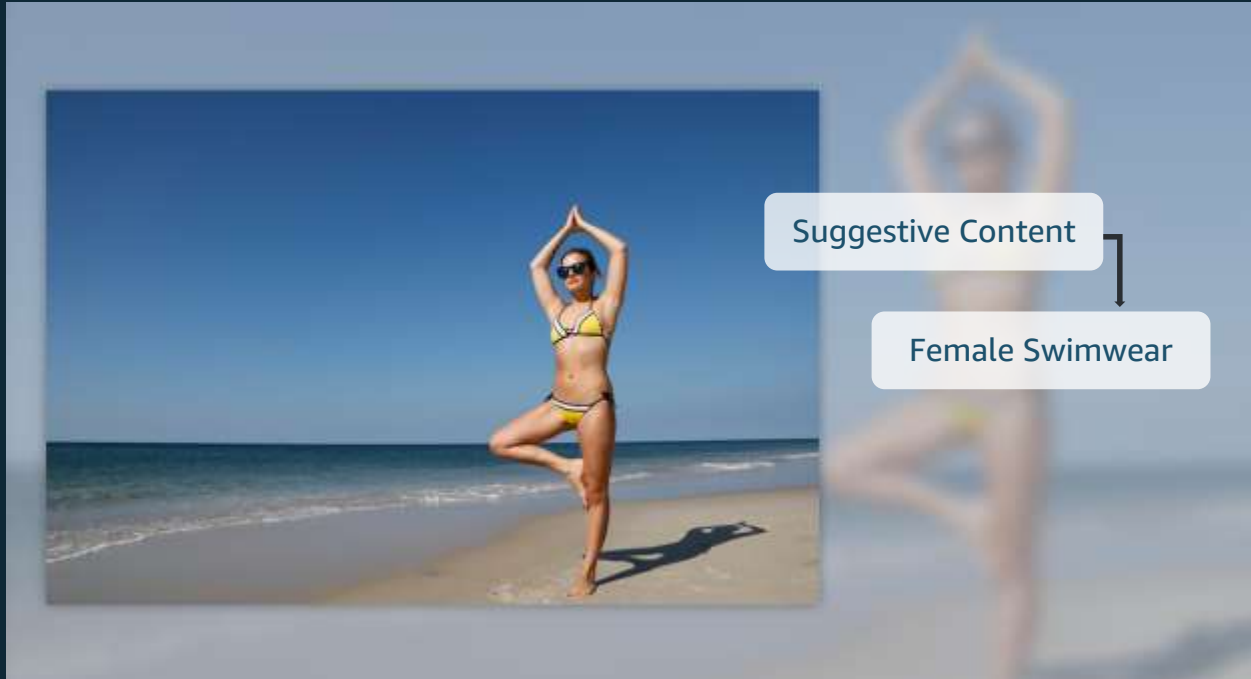
GetCelebrityRecognition



```
"Celebrities": [  
  {  
    "Id": string,  
    "Timestamp": number,  
    "BoundingBox": { ... }  
    "Urls": [],  
    "Celebrity":  
    {  
      "Confidence": number  
      "Name": string,  
      "Face":  
      {  
        "BoundingBox": { ... },  
        "Landmarks": { ... },  
        "Pose": { ... },  
        "Quality": { ... },  
        "Confidence": number  
      }  
    }  
  },  
  ...  
]
```

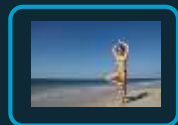
Amazon Rekognition Video

Unsafe Video Detection



Amazon Rekognition Video

Unsafe Video Detection



StartContentModeration



GetContentModeration



```
"ModerationLabels": [  
  {  
    "Timestamp": number,  
    "ModerationLabel":  
      {  
        "Name": "string",  
        "ParentName": "string",  
        "Confidence": float  
      }  
  },  
  ...  
]
```

Amazon Rekognition Video

Media and entertainment



Create metadata for celebrities, emotions, key topics in video with time segments for search
Recommendation engines, ad placement



Automatically detect inappropriate content, based on market requirements

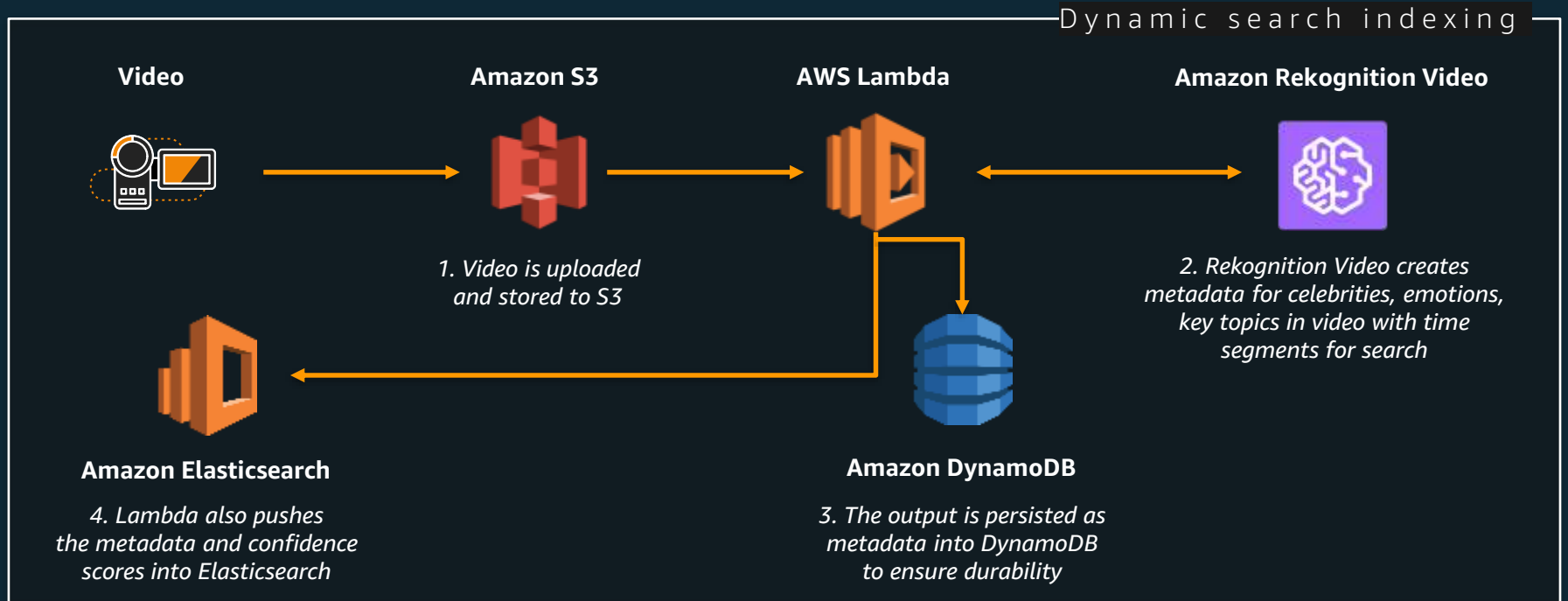


Extract data in streaming mode to enhance user engagement



Amazon Rekognition Video

Use case : Video Search Index



Amazon Rekognition Video

Public safety



Recognize a person of interest across a collection of millions in real time across hundreds of cameras



Track a person of interest across a video



Create alerts by detecting objects and activities of interest, such as car, license plate, running, etc.



Amazon Rekognition Video

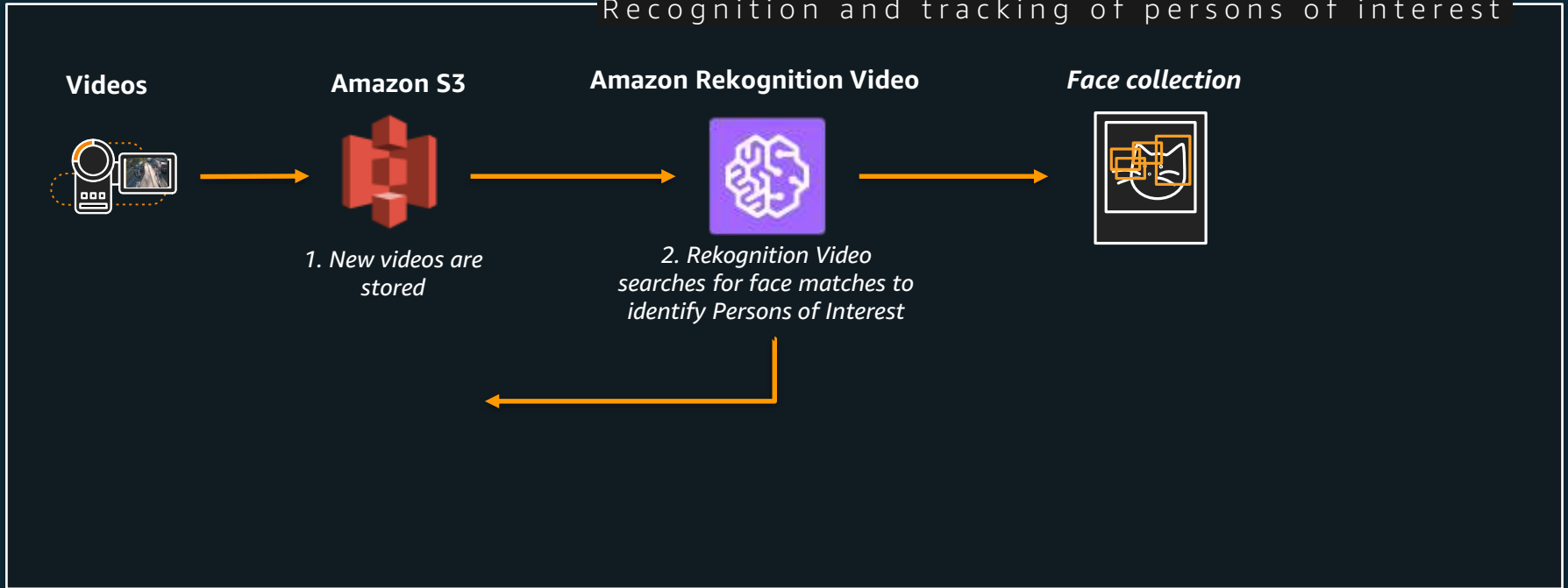
Use case : Public Safety Immediate Response



Amazon Rekognition Video

Use case : Face Search for Investigative Analysis

Recognition and tracking of persons of interest



Amazon Rekognition Video

Home Monitoring



Face recognition for door-bell cameras



Detect Activities from home cameras



Amazon Rekognition Video

Other applications



Photo-sharing apps can power smart searches and quickly find memories, such as weddings or sunsets



Store cameras can begin extracting data such as person count, flow direction, flow velocity, etc.



Factories can use cameras for safety management, operational efficiency, etc.

Amazon Rekognition Video

Customers



Amazon Rekognition Video

Regions



Amazon Rekognition Video

API pricing



Free tier

1000 min of free tier per month for the first year



Video analysis

\$0.10/min of video processed for all archive API



Stream analysis

\$0.12/min of video processed for streaming API

Amazon Rekognition Video

Benefits



Real-time and
batch analysis



Motion and
time context



Continuously
improving



Live Stream
Support



Low cost

Getting started with Rekognition Video

Getting started:

<https://aws.amazon.com/rekognition/getting-started/>

Developer Resources:

<https://aws.amazon.com/rekognition/developers/>

AWS AI Blog—Amazon Rekognition:

<https://aws.amazon.com/blogs/ai/tag/amazon-rekognition/>

Thank You!

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