AWS re:Invent

GPSTEC332

Building ML-based applications using .NET technologies on AWS

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AWS re:Invent

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aws

The AWS ML stack

Broadest and deepest set of capabilities

AI services

VISION			SPEECH		LANGUAGE		CHATBOTS	FORECASTING	RECOMMENDATIONS
Amazon Rekognition Image	Amazon Rekognition Video	Amazon Textract	Amazon Polly	Amazon Transcribe	Amazon Translate	Amazon Comprehend & Amazon Comprehend Medical	Amazon Lex	Amazon Forecast	Amazon Personalize

ML services

Amazon SageMaker

Ground Truth	Notebooks	Algorithms + Marketplace	Reinforcement Learning	Training	Optimization	Deployment	Hosting

ML frameworks + infrastructure

FRAMEWORKS	INTERFACES
TensorFlow, mxnet, PYTORCH	GLUON, Keras

INFRASTRUCTURE								
EC2 P3 & P3DN	EC2 G4 EC2 C5	FPGAs	DL Containers & AMIs	Amazon ECS	Amazon EKS	AWS IoT Greengrass	Amazon Elastic Inference	AWS Inferentia

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Customer references

Liberty Mutual uses AWS ML to develop natural language-driven conversational apps to allow customer service agents to respond to customer requests with real-time and contextual intelligence, improving response time and quality of service

Meaningful customer interactions

C-SPAN uses AWS ML to automatically index video news footage for search. C-SPAN reduced indexing time per video from 1 hour to 20 minutes and uploaded 97,000 images in under 2 hours.

Scaling video indexing

Domino's uses AWS ML to customize and scale relevant marketing communications to customers based on time, context, and content, thereby improving and enhancing their experience with the Domino's brand

Personalizing customer experiences

Amazon Rekognition

Deep learning–based image and video analysis service

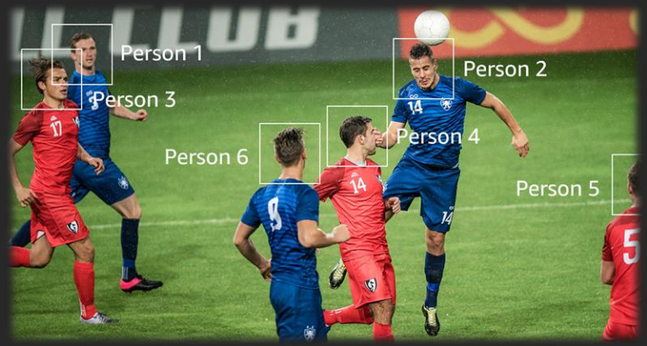
Object, scene, and activity detection

Face recognition

Unsafe image detection

Celebrity recognition

Facial analysis



Pathing

Text in image

Real-time live stream

Amazon Transcribe

Automatic speech recognition

Support for both regular and telephony audio

S3 integration

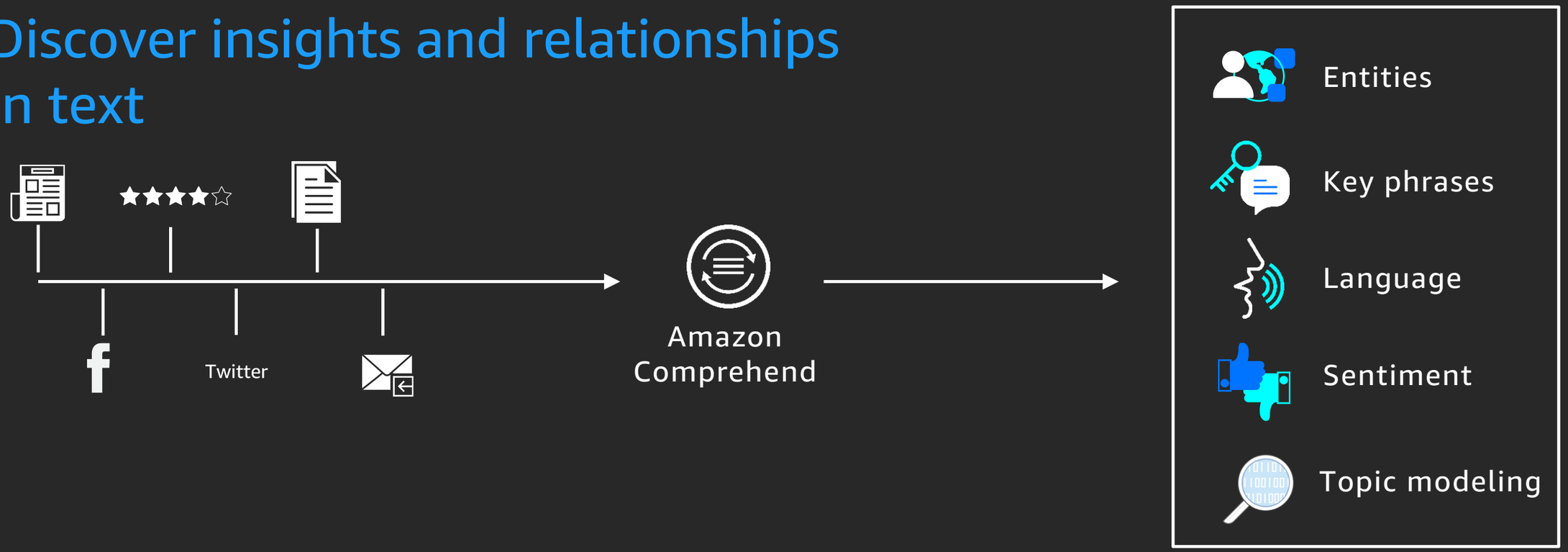
Time stamps and confidence scores

Punctuation

English and Spanish with more to come

Amazon Comprehend

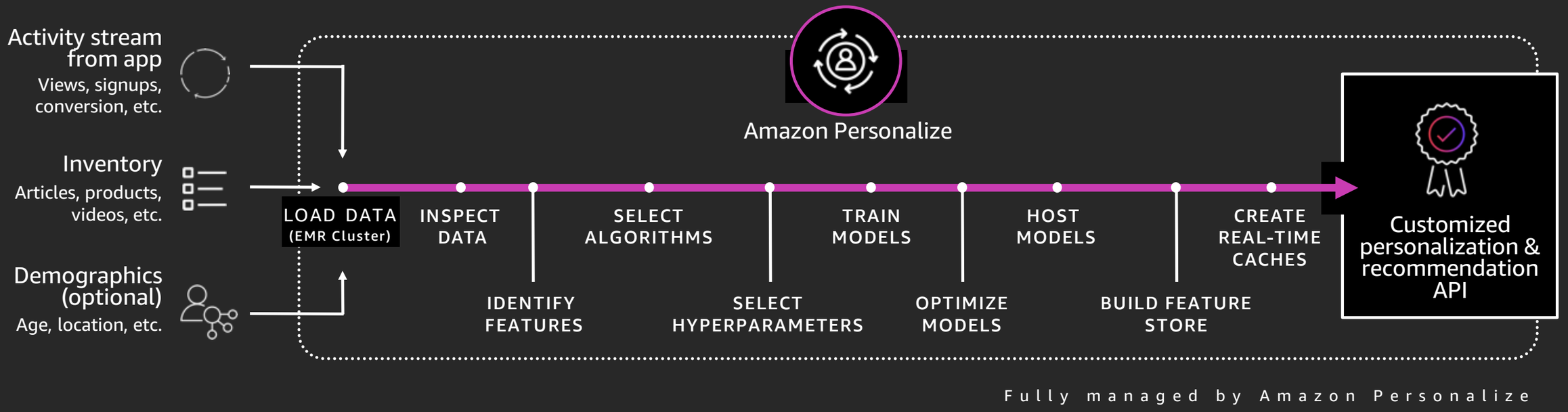
Discover insights and relationships in text



A fully managed and continuously trained service that discovers insights and relationships in text

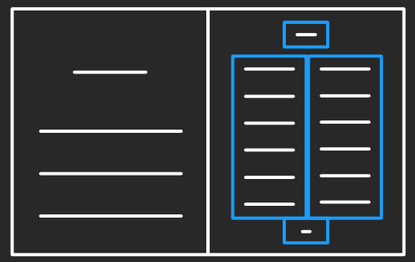
Amazon Personalize

Real-time personalization and recommendation service, based on the same technology used at Amazon.com



Amazon Textract

Extract text and data from virtually any document



Extract data quickly and accurately

Eliminate manual effort

Lower document processing costs

KEY FEATURES

Optical Character Recognition (OCR)	Key-value pair detection	Table detection	Adjustable confidence thresholds	Bounding box coordinates	No ML experience required

Amazon Lex: “Book a hotel”

“Book a hotel in NYC”

Book | a | hotel | in | NYC

Automatic speech recognition

Hotel booking

New York City

Natural language understanding

Intent/slot Model

Utterances

Hotel booking	
City	New York City
Check-in	April 19
Check-out	April 21

“Can I go ahead with the booking?”

λ

Confirmation: “Your hotel is booked for April 19”

Amazon Polly

“Your hotel is booked for April 19”

AWS SDK and tools for .NET developers

IDE integration

AWS Toolkit for Visual Studio

AWS Toolkit for Visual Studio Code

Programmable SDK

AWS SDK for .NET

AWS CDK for .NET

Command line tools

AWS Tools for PowerShell

'dotnet' CLI extensions

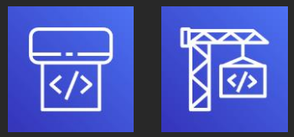
AWS CLI

AWS SAM for Windows

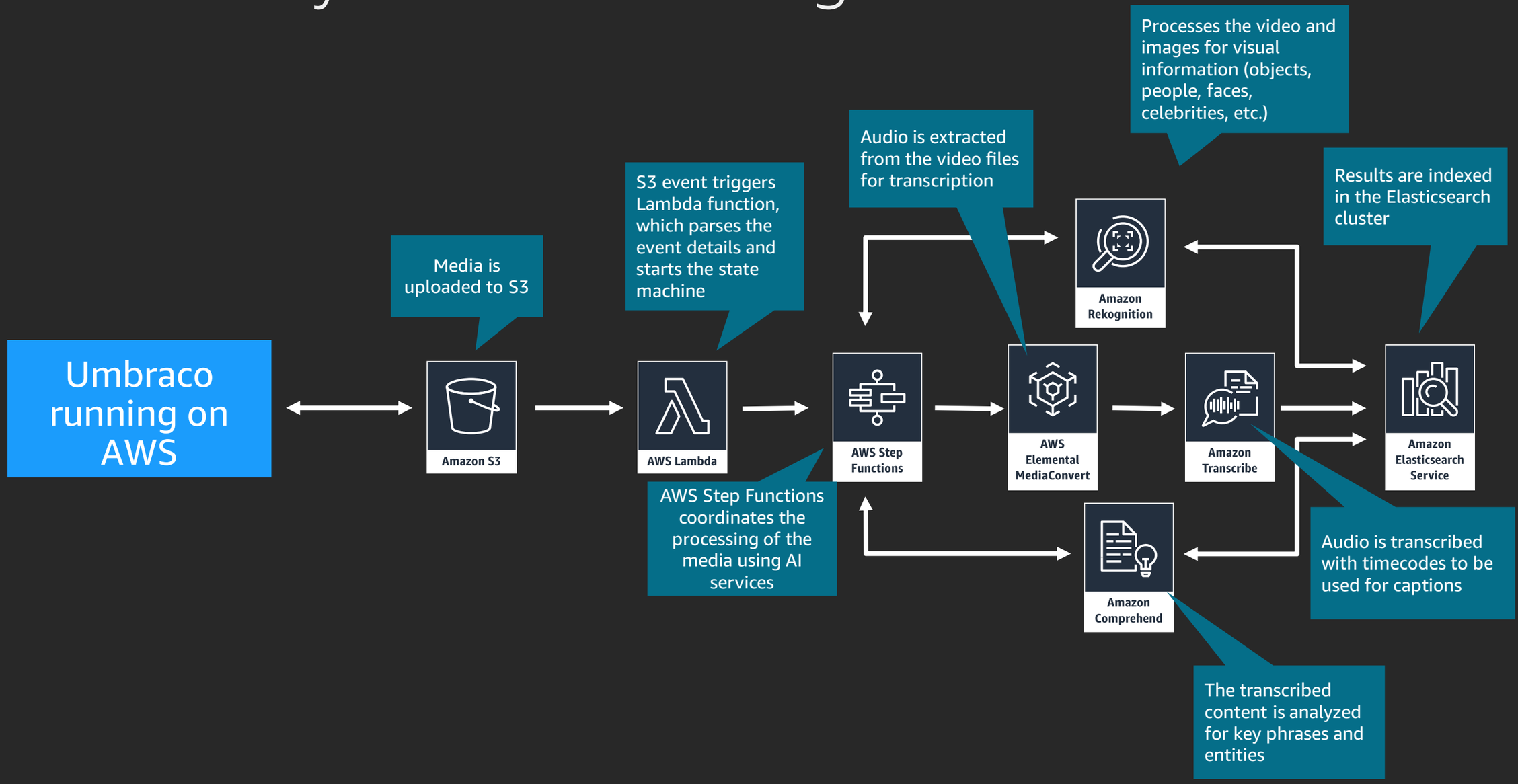
CI/CD integration

AWS Tools for Azure DevOps

AWS CodePipeline
AWS CodeBuild



Media analysis solution using .NET



Demo

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