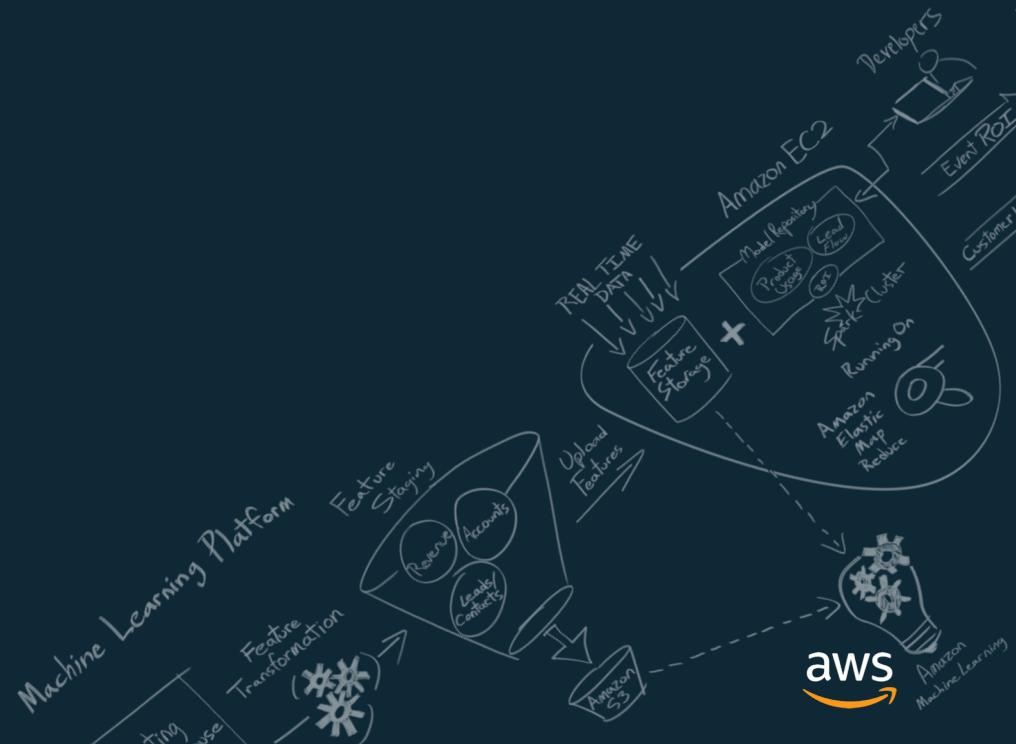


A Developer's Perspective on Future Trends

Donnie Prakoso
Technology Evangelist
AWS Singapore



Hello, World!



Donnie Prakoso, MSc
AWS Technology Evangelist, ASEAN



@donnieprakoso



donnieprakoso

- Speak in Go and Python
- Machine Learning and Serverless
- I ❤️ AWS User Groups





DEVELOPERS

I.T.
OPS

DATA
SCIENTIST
S

DATA
PROFESSIONALS

CxO

BUSINESS
PEOPLE

Who are Builders?

Builders have DNA of innovation.

Innovation requires series of experiments.

- 1 Elasticity
- 2 Cost Savings
- 3 Breadth and Depth of Functionalities
- 4 Agility
- 5 Go global in a minute

Our Customers in Indonesia



Cloud is the new normal...

...and time is valuable.



30%

Cost Saving

300%

Traffic

50%

Go To Market

By using AWS, Kumparan saves up to 30% on implementation costs, compared to running an on-premise infrastructure. With increased availability and close to zero downtime, we can focus on our application delivery instead.

Autoscaling lets Kumparan deliver reliable services, even with up to 3X spike in traffic.

Using AWS allowed Kumparan to shorten time to market. It took three months from web development to go 'live', instead of six months based on previous experience they had.



What's Next?

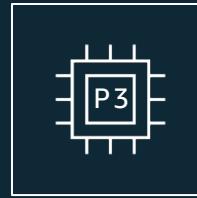
Technology drivers today



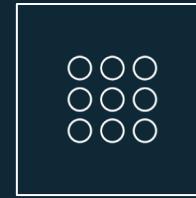
Data



IoT



ML Infrastructure



Deep learning
frameworks





Openness of data and API.

Registry of Open Data on AWS

IRRI

JOB NEWS EVENTS RICE TODAY BLOGS RESOURCES INTRANET (STAFF ONLY)

ABOUT US OUR WORK OUR IMPACT GET INVOLVED SEARCH IRRI

Home > News > Media releases > Big data on 3,000 rice genomes available on the AWS Cloud

Big data on 3,000 rice genomes available on the AWS Cloud

 Print  Email

 Like 37  Share  Tweet  Share  Share



Sample seeds from among the 127,000 rice varieties and accessions stored in the International Rice Genebank at the International Rice Research Institute.

The 3,000 Rice Genomes Project (3K RGP) is a collaborative, international research program that

<https://registry.opendata.aws/>





Eventually everything connects.



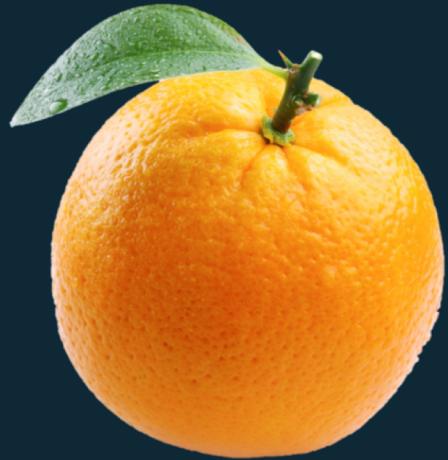
I'm here.
and my head is in the cloud.



Machine learning helps human judgement.

Classic Problem

?



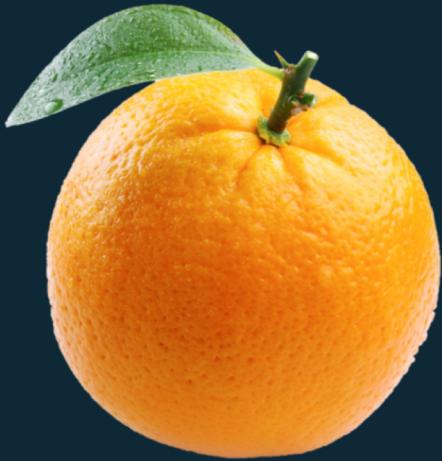
?



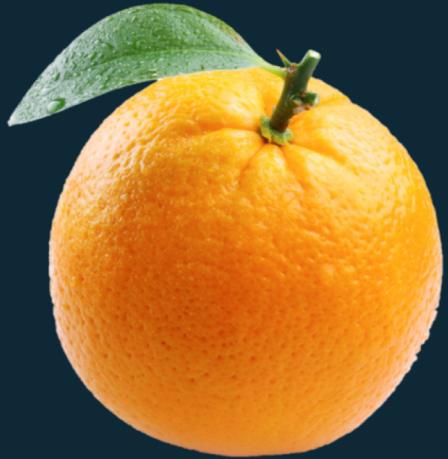
We Know More Than We Can Tell

What Is This?

?



What Is This?



```
{  "Labels": [  
    {  
        "Name": "Citrus Fruit",  
        "Confidence": 96.2040786743164  
    },  
    {  
        "Name": "Fruit",  
        "Confidence": 96.2040786743164  
    },  
    {  
        "Name": "Grapefruit",  
        "Confidence": 96.2040786743164  
    },  
    {  
        "Name": "Orange",  
        "Confidence": 96.2040786743164  
    }],  
    "OrientationCorrection": "ROTATE_0" } 
```

We Know Less
Than We Can Tell



Human centric interface.





BookHotel

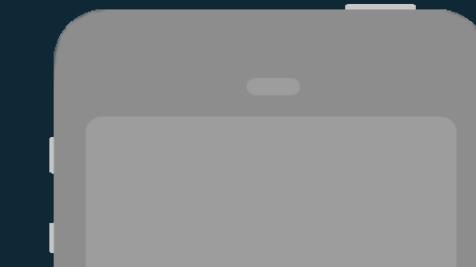
Intents

A particular goal that the user wants to achieve



Utterances

Spoken or typed phrases that invoke your intent



I'd like to book a hotel.

Sure, which city?

New York City

What date do you check in?

November 30th.

Slots

Data the user must provide to fulfill the intent

Prompts

Questions that ask the user to input data

Fulfillment

The business logic required to fulfill the user's intent

Are you sure you want to book the hotel in New York City?

Yes.

Thank you. The reservation went through successfully.

Amazon Lex



Amazon Lex

Use cases



Contact Center Bots

Chatbots for customer service IVR

Account inquiries
Bill payment
Service update



Informational Bots

Chatbots for everyday consumer requests

News updates
Weather information
Game scores



Application Bots

Build powerful interfaces to mobile applications

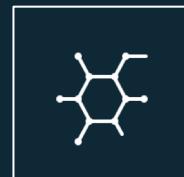
Book tickets
Order food
Manage bank accounts



Enterprise Productivity Bots

Streamline enterprise work activities and improve efficiencies

Check sales numbers
Marketing performance
Inventory status



Internet of Things (IoT) Bots

Enable conversational interfaces for device interactions

Wearables
Appliances
Auto



**Data is everywhere and where data
is collected...**



... machine learning will follow.



Sentiment Analysis Demo

Amazon Rekognition

Deep learning-based image and video analysis

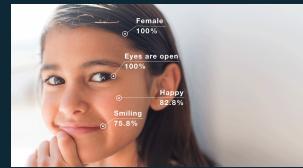
<https://aws.amazon.com/rekognition/>



Object, Scene
& Activity
Recognition



Facial
Recognition



Facial
Analysis



Person
Tracking



Unsafe
Content
Detection



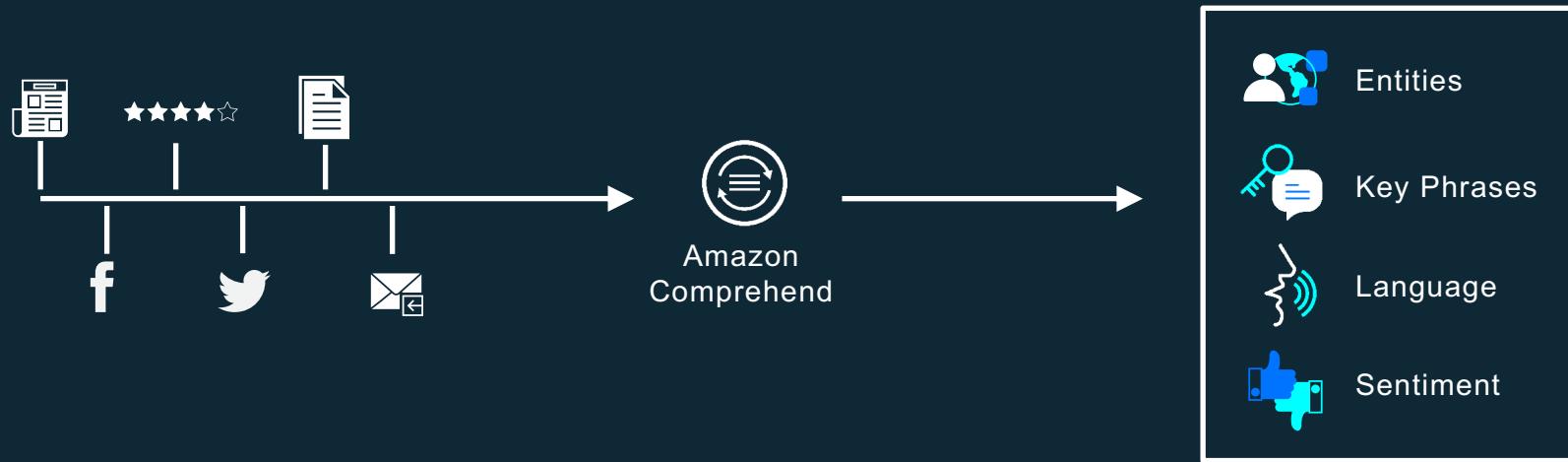
Celebrity
Recognition



Text in Images

Amazon Comprehend

Discover insights and relationships in text



Amazon Comprehend

Discover insights and relationships in text

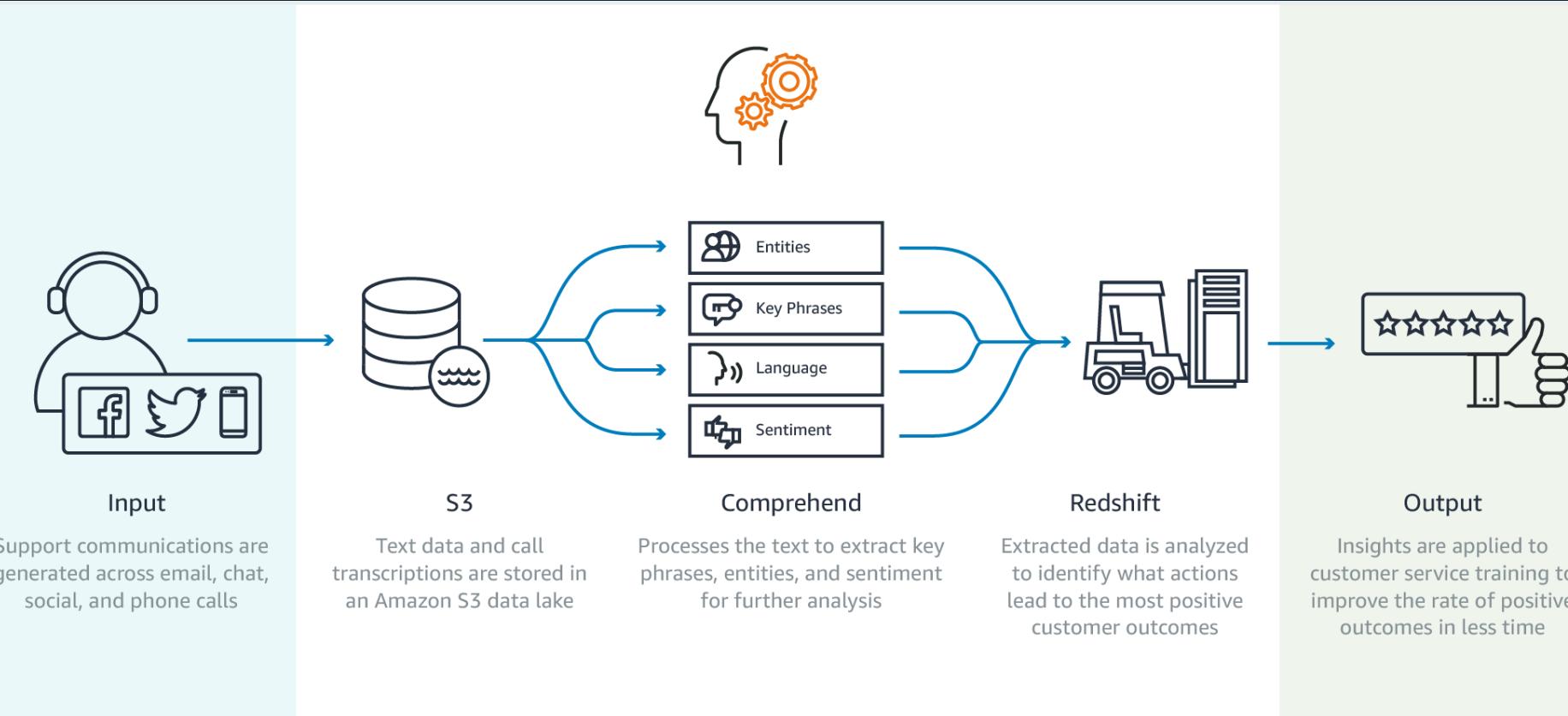


LIBRARY OF
NEWS ARTICLES



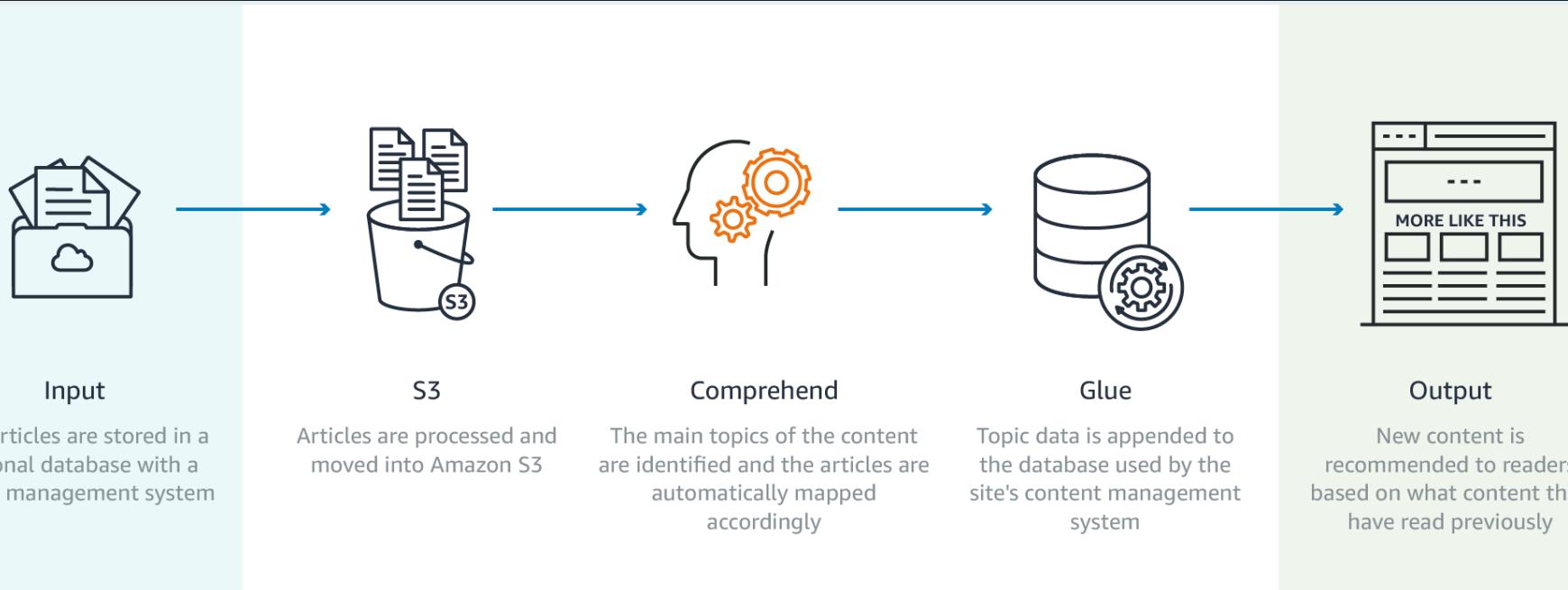
Amazon Comprehend

Customer Feedback Analytics



Amazon Comprehend

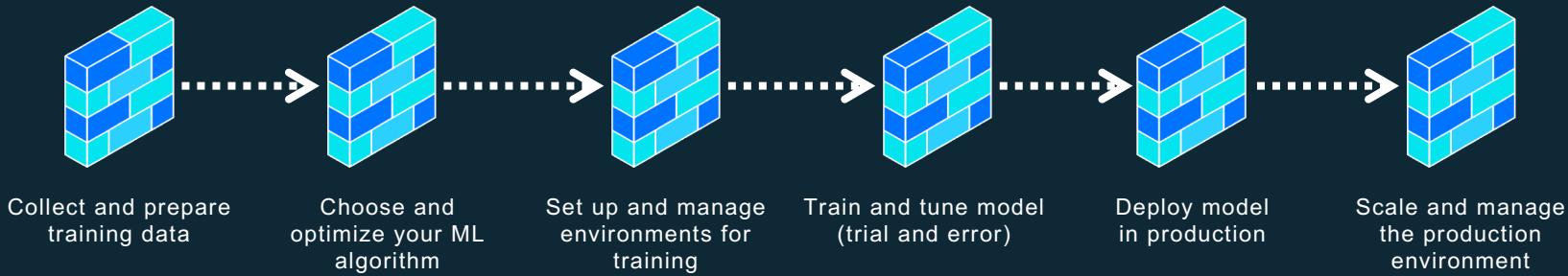
Knowledge Management and Discovery





Don't code the patterns but let the system learns through data

ML is still too complicated for everyday developers



Amazon SageMaker

Easily build, train and deploy your machine learning models

<https://aws.amazon.com/sagemaker/>



Pre-built
notebooks for
common
problems



Built-in, high
performance
algorithms



One-click
training



Hyperparameter
optimization



One-click
deployment



Fully managed
hosting with auto-
scaling

BUILD

TRAIN

DEPLOY

Amazon SageMaker



Pre-built
notebooks for
common
problems



Built-in, high
performance
algorithms

ALGORITHMS	K-Means Clustering Principal Component Analysis Neural Topic Modelling Factorization Machines Linear Learner - Regression	XGBoost Latent Dirichlet Allocation Image Classification Seq2Seq Linear Learner - Classification
FRAMEWORKS	Apache MXNet TensorFlow	Caffe2, CNTK, PyTorch, Torch



Set up and manage
environments for
training



Train and tune
model (trial and
error)



Deploy model
in production



Scale and manage the
production environment

BUILD

Amazon SageMaker



Pre-built
notebooks for
common
problems



Built-in, high
performance
algorithms



One-click
training



Hyperparameter
optimization



Deploy model
in production



Scale and manage
the production
environment

BUILD

TRAIN

Amazon SageMaker



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Built-in, high
performance
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One-click
training



Hyperparameter
optimization



One-click
deployment

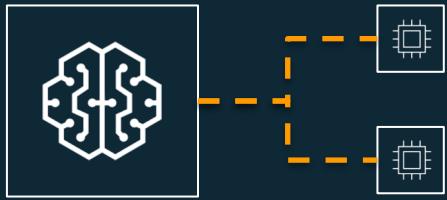


Fully managed
hosting with auto-
scaling

BUILD

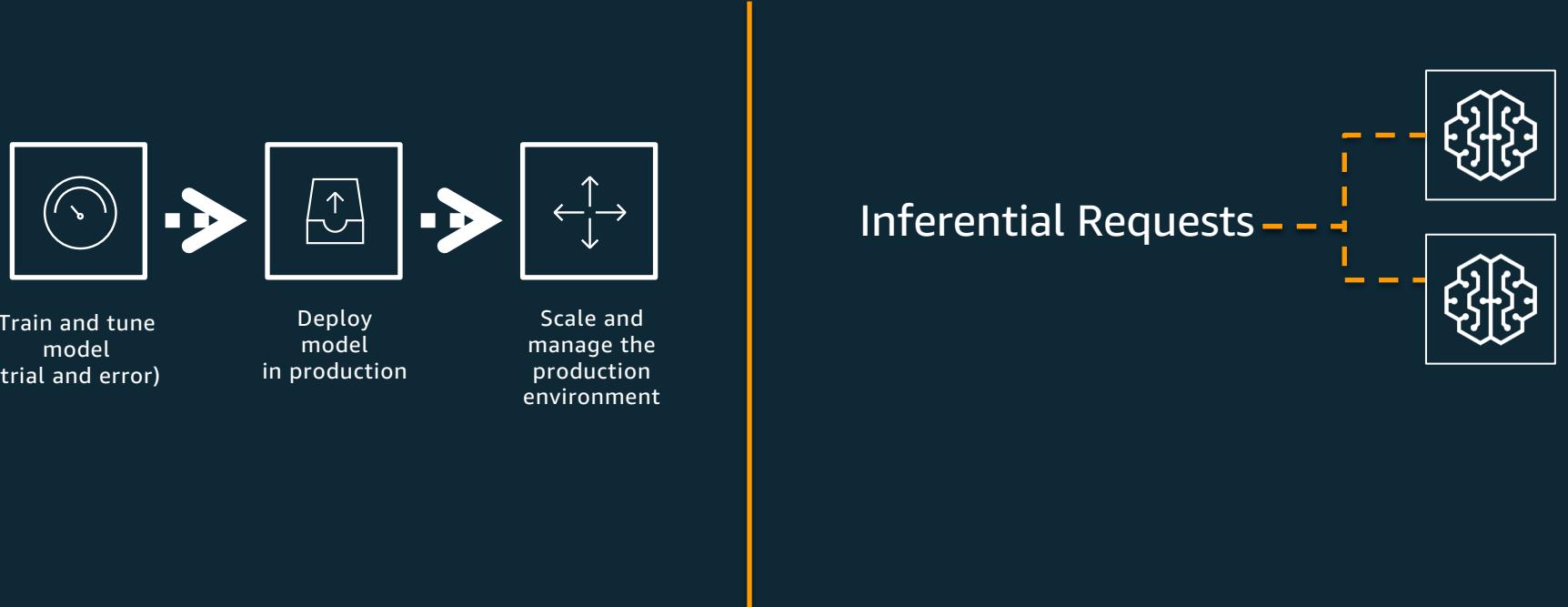
TRAIN

DEPLOY



Scale matters.

Amazon SageMaker



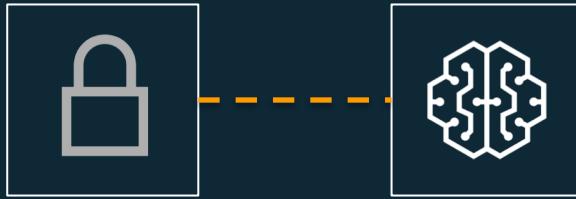
Machine Learning Platform

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Security is everyone's job.



Amazon Rekognition Face Authentication Demo

Amazon Rekognition

Deep learning-based image and video analysis

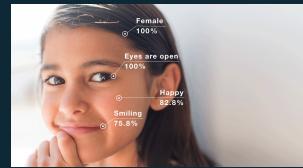
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Object, Scene
& Activity
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Facial
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Analysis



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Tracking



Unsafe
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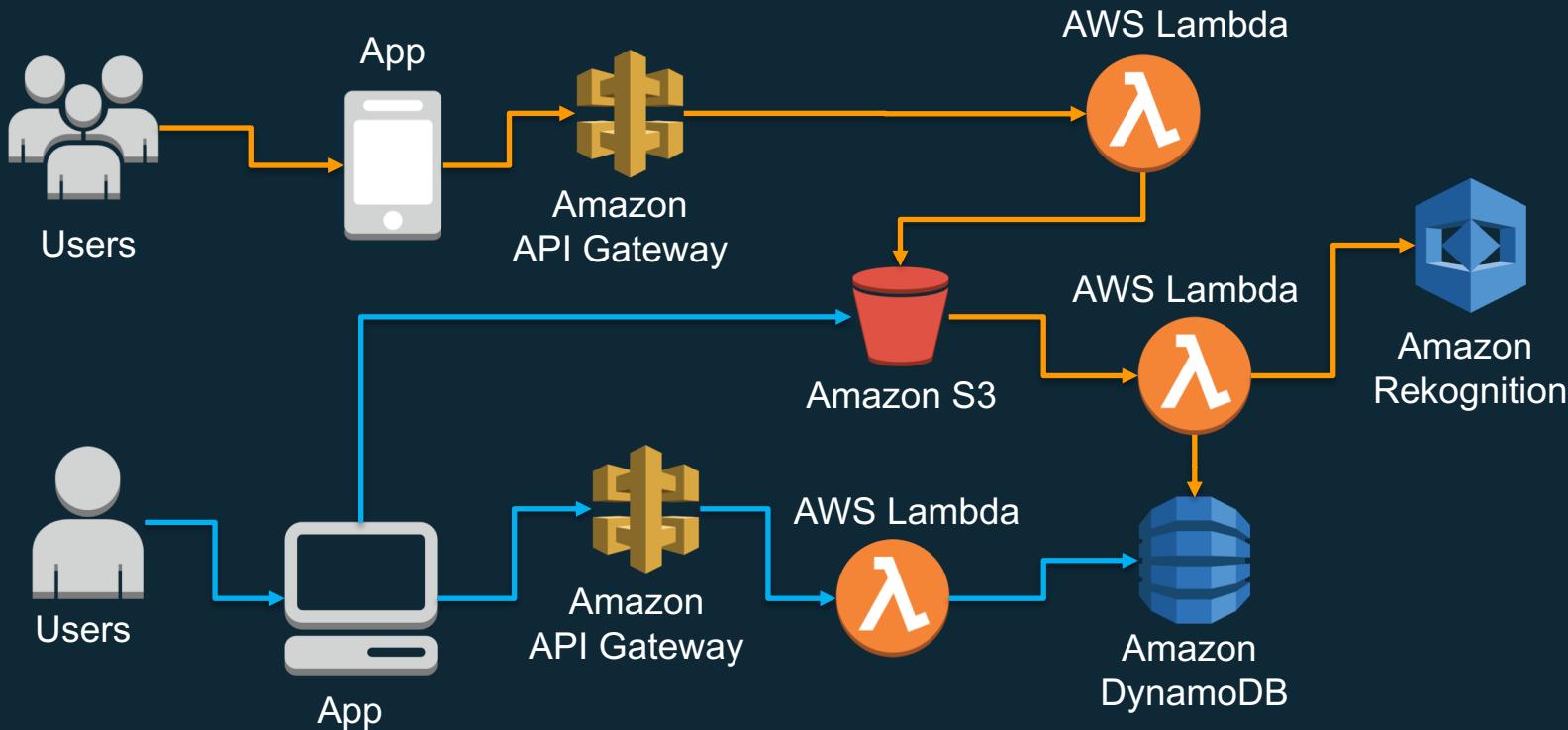
Celebrity
Recognition



Text in Images

Amazon Rekognition

Diagram Architecture





IoT devices will become smarter.



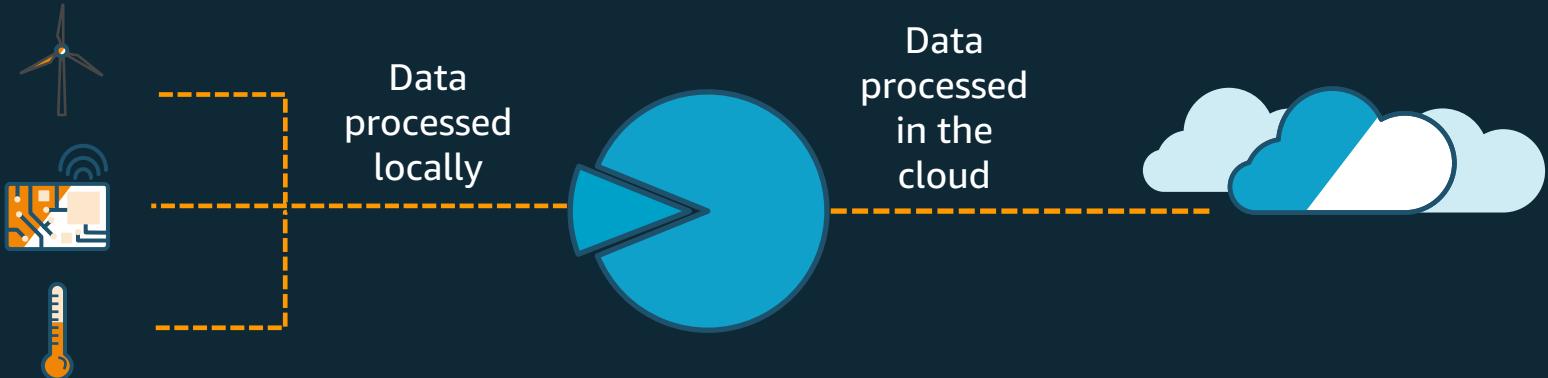
AWS vision of IoT



AWS Greengrass

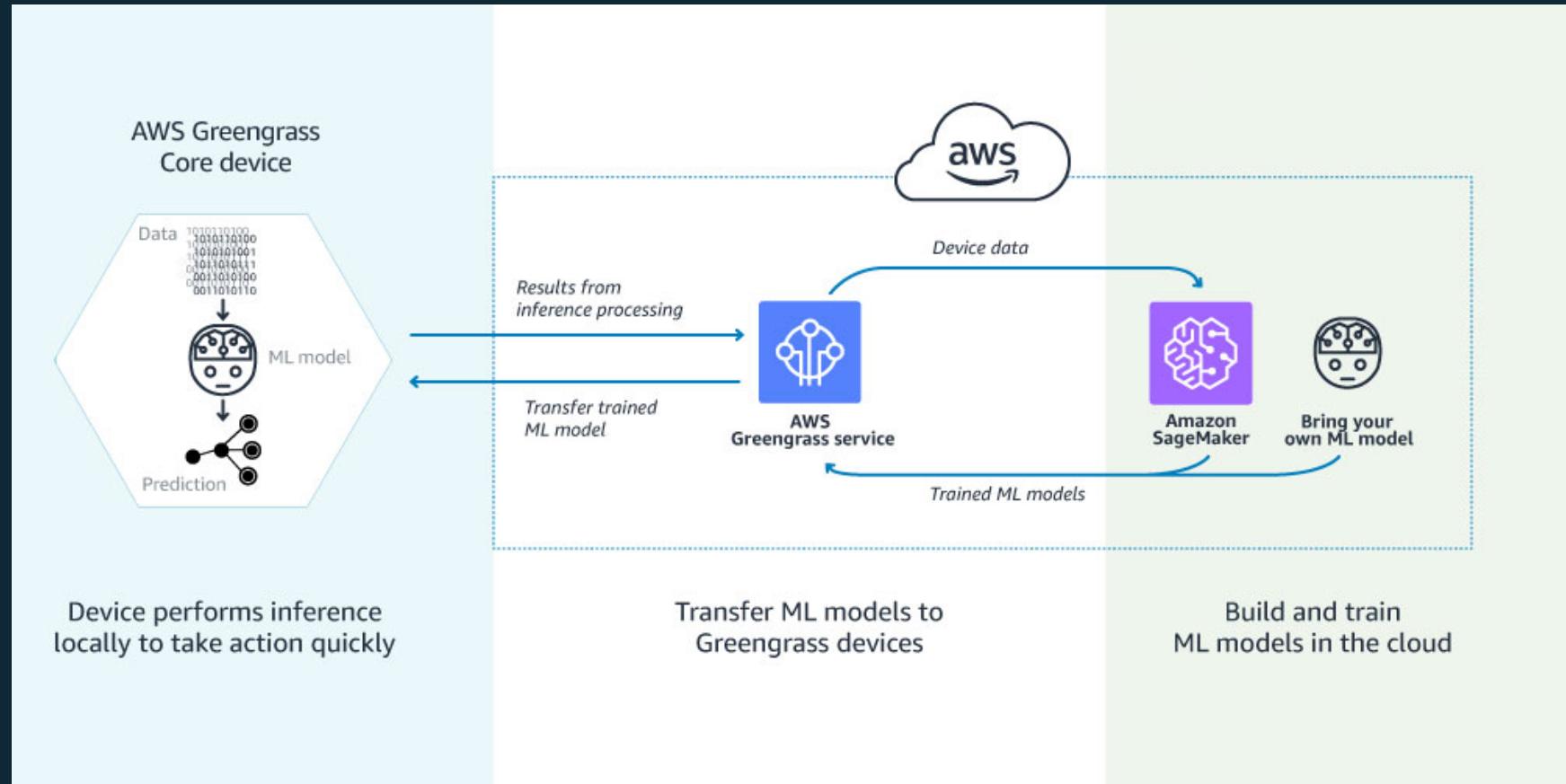
Moving to the Edge

AWS Greengrass extends AWS onto your devices, so they can act locally on the data they generate, while still taking advantage of the cloud.



AWS Greengrass ML Inference

Run machine learning models on AWS Greengrass devices





AWS IoT Demo

**Builders will have more focus on
business logic.**

Where Do You Start?

Get Started with AWS ML Application Services



LEX



POLLY



REKOGNITION



REKOGNITION
VIDEO



TRANSCRIBE



TRANSLATE



COMPREHEND

APPLICATION SERVICES

AI for everyone



LEX



POLLY



REKOGNITION



REKOGNITION
VIDEO



TRANSCRIBE



TRANSLATE



COMPREHEND

PLATFORM SERVICES

AI for engineers



AMAZON
SAGEMAKER

FRAMEWORKS AND INTERFACES

AI for data scientists



Caffe2



CNTK



mxnet



PYTORCH



TensorFlow



torch

Frameworks



KERAS



GLUON



GO BUILD



Thank you! For being a builder.



Donnie Prakoso, MSc
AWS Technology Evangelist, ASEAN



@donnieprakoso



donnieprakoso

<https://donnie.id>