

# A Developer's Perspective on Future Trends

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# Hello, World!



**Donnie Prakoso, MSc**  
AWS Technology Evangelist, ASEAN



@donnieprakoso



donnieprakoso

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



# Who are Builders?

DEVELOPERS

DATA  
PROFESSIONALS

BUSINESS  
PEOPLE

I.T.  
OPS

DATA  
SCIENTISTS

CxO

# 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...



**...because 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?

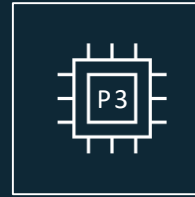
# Technology drivers today



Data



IoT



ML Infrastructure



Deep learning  
frameworks





# Eventually everything connects.

# Alexa Demo



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



# Machine learning helps human judgement.



# Classic Problem

?



?



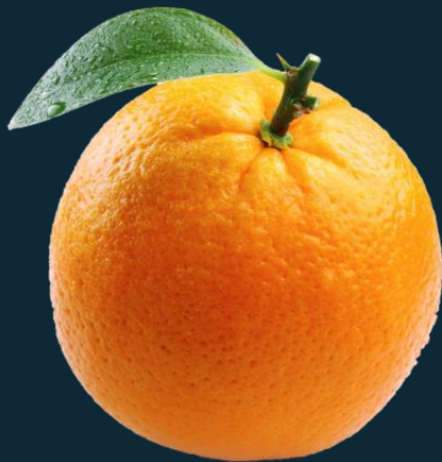
**We Know More  
Than We Can Tell**

# 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.



## Intents

A particular goal that the user wants to achieve

## Utterances

Spoken or typed phrases that invoke your intent

## 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



I'd like to book a hotel.

Sure, which city?

New York City

What date do you check in?

...

November 30th.

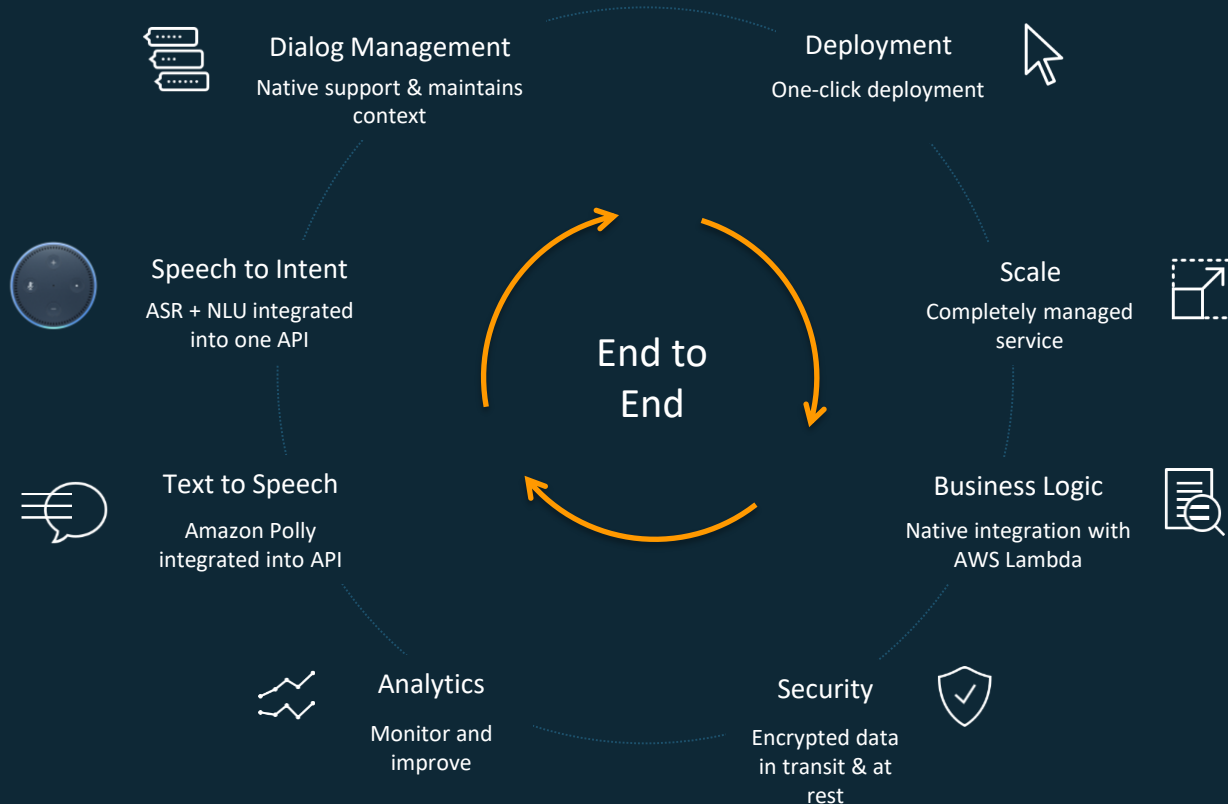


Are you sure you want to book the hotel in New York City?

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

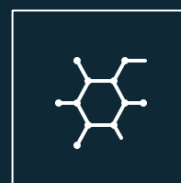
Book tickets  
Order food  
Manage bank accounts ....



### 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.**

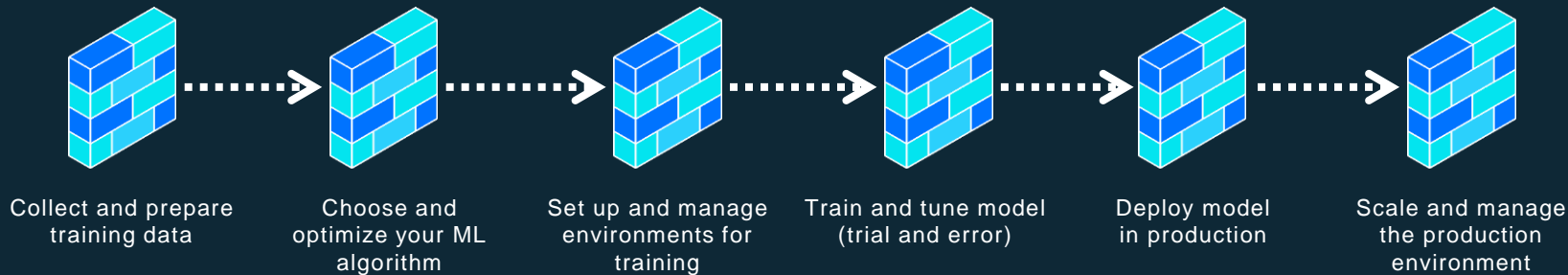


# Sentiment Analysis Demo



**Don't code the patterns but let the system learn 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

BUILD



One-click  
training



Hyperparameter  
optimization

TRAIN



One-click  
deployment



Fully managed  
hosting with auto-  
scaling

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



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# Amazon SageMaker



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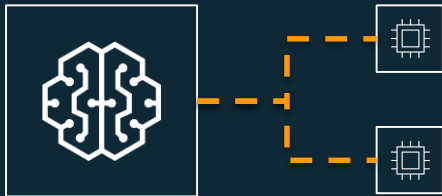


Fully managed  
hosting with auto-  
scaling

BUILD

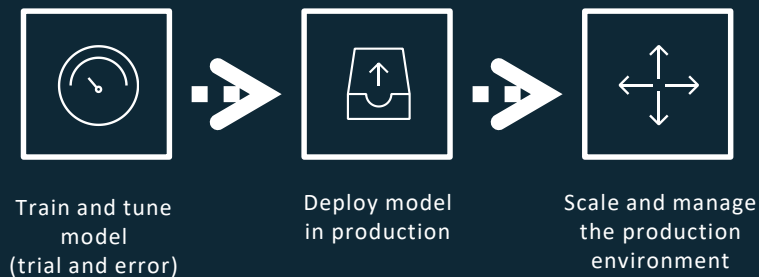
TRAIN

DEPLOY



# Scale matters.

# Amazon SageMaker



Inferential Requests



Machine Learning Platform

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# Security is everyone's job.



# Amazon Rekognition Face Authentication Demo



# IoT devices will become smarter.



# AWS vision of IoT

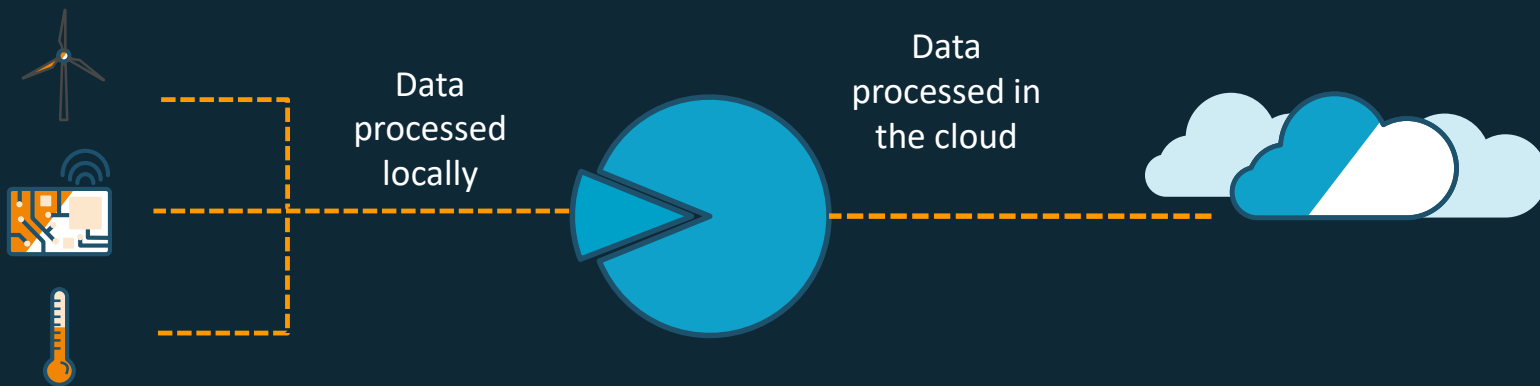




# AWS Greengrass

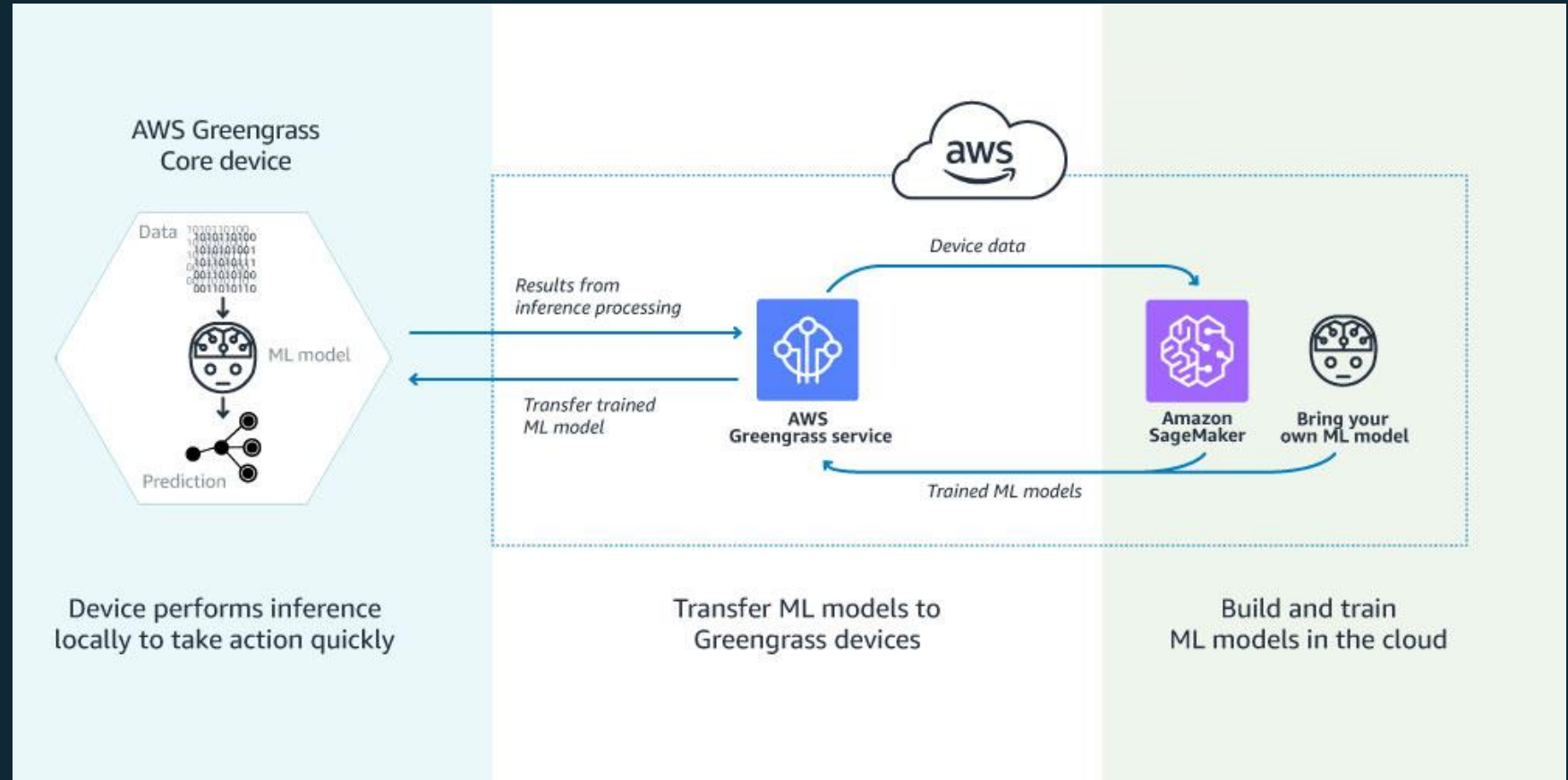
## Moving to the Edge

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?



# GO BUILD



# Thank you!

## For being a builder.



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