# 15CSE337
# Cloud Computing and Services

AWS LAMDA

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# AWS LAMDA

- AWS Lambda lets you run code without provisioning or managing servers
- You pay only for the compute time you consume - there is no charge when your code is not running
- With Lambda, you can run code for virtually any type of application or backend service - all with zero administration
- Just upload your code and Lambda takes care of everything required to run and scale your code with high availability
- You can set up your code to automatically trigger from other AWS services or call it directly from any web or mobile app.

# Benefits

## NO SERVERS TO MANAGE

- AWS Lambda automatically runs your code without requiring you to provision or manage servers. Just write the code and upload it to Lambda.
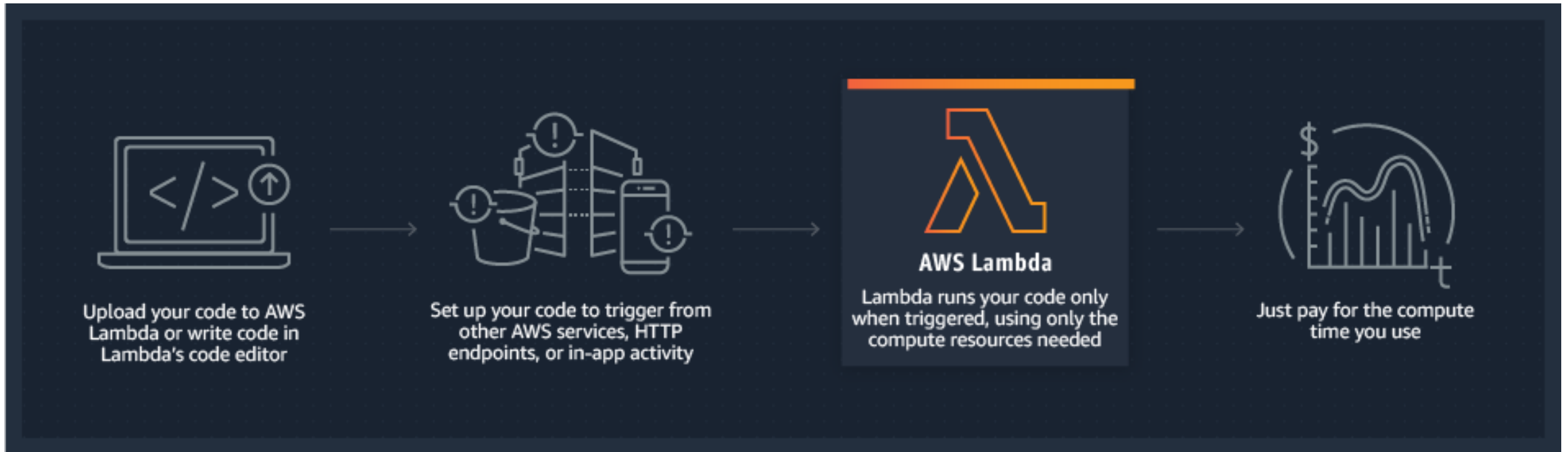
## CONTINUOUS SCALING

- AWS Lambda automatically scales your application by running code in response to each trigger. Your code runs in parallel and processes each trigger individually, scaling precisely with the size of the workload.
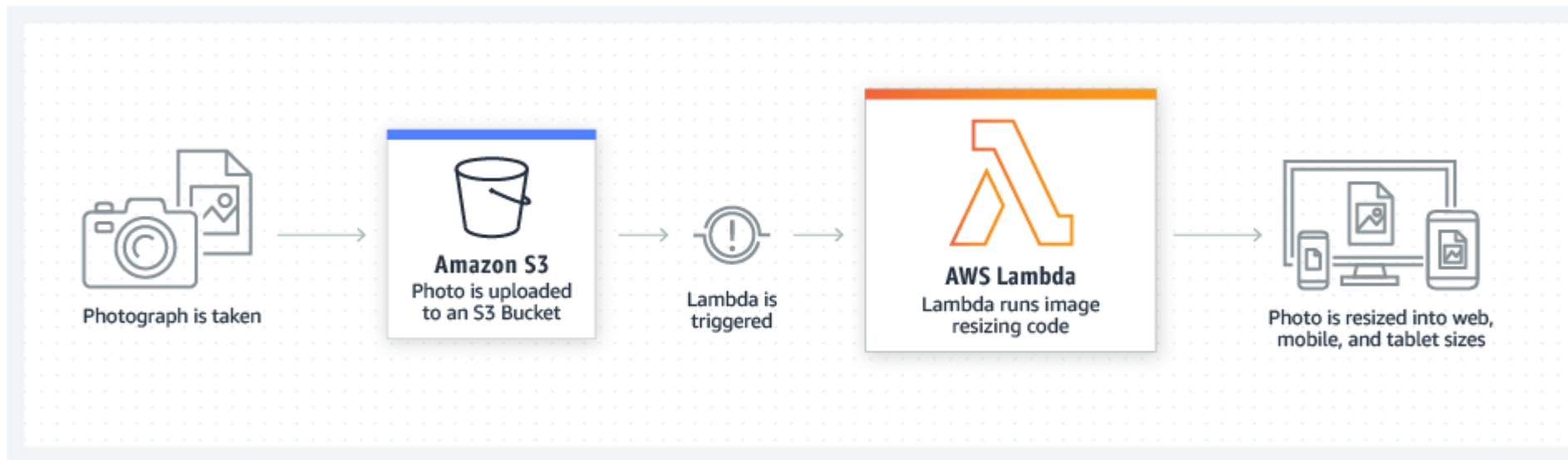
## SUBSECOND METERING

- With AWS Lambda, you are charged for every 100ms your code executes and the number of times your code is triggered. You don't pay anything when your code isn't running.

# How it works?



Upload your code to AWS Lambda or write code in Lambda's code editor

Set up your code to trigger from other AWS services, HTTP endpoints, or in-app activity

**AWS Lambda**

Lambda runs your code only when triggered, using only the compute resources needed

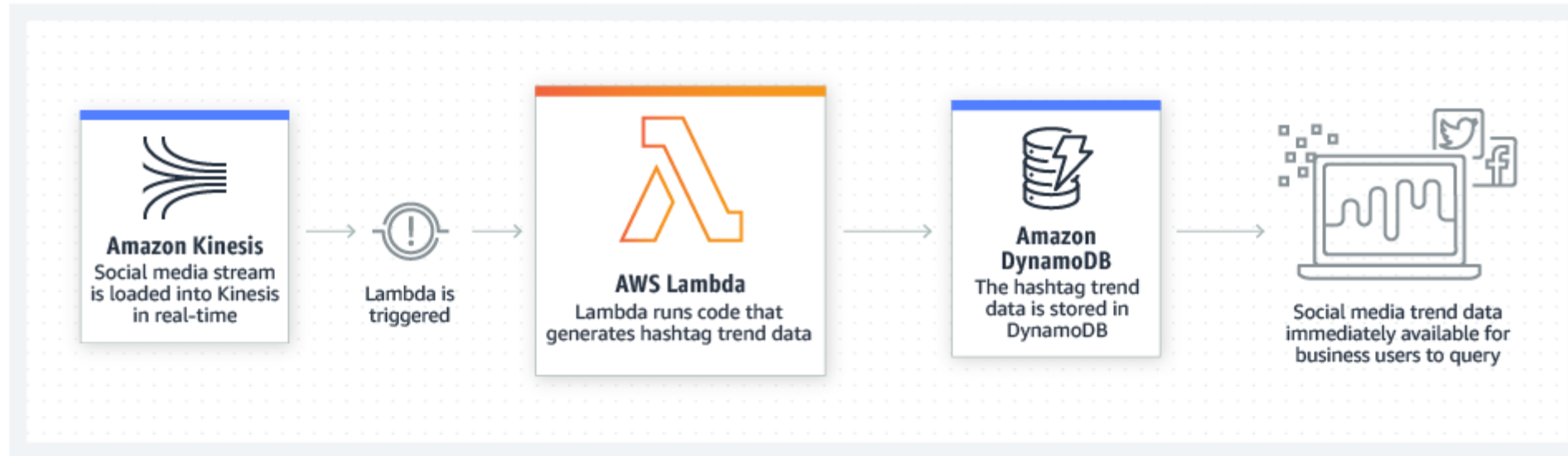Just pay for the compute time you use

# Usecases

- Data processing
  - You can use AWS Lambda to execute code in response to triggers such as changes in data, shifts in system state, or actions by users.

- REAL-TIME FILE PROCESSING



Photograph is taken → Amazon S3 Photo is uploaded to an S3 Bucket → Lambda is triggered → AWS Lambda Lambda runs image resizing code → Photo is resized into web, mobile, and tablet sizes

# Usecases

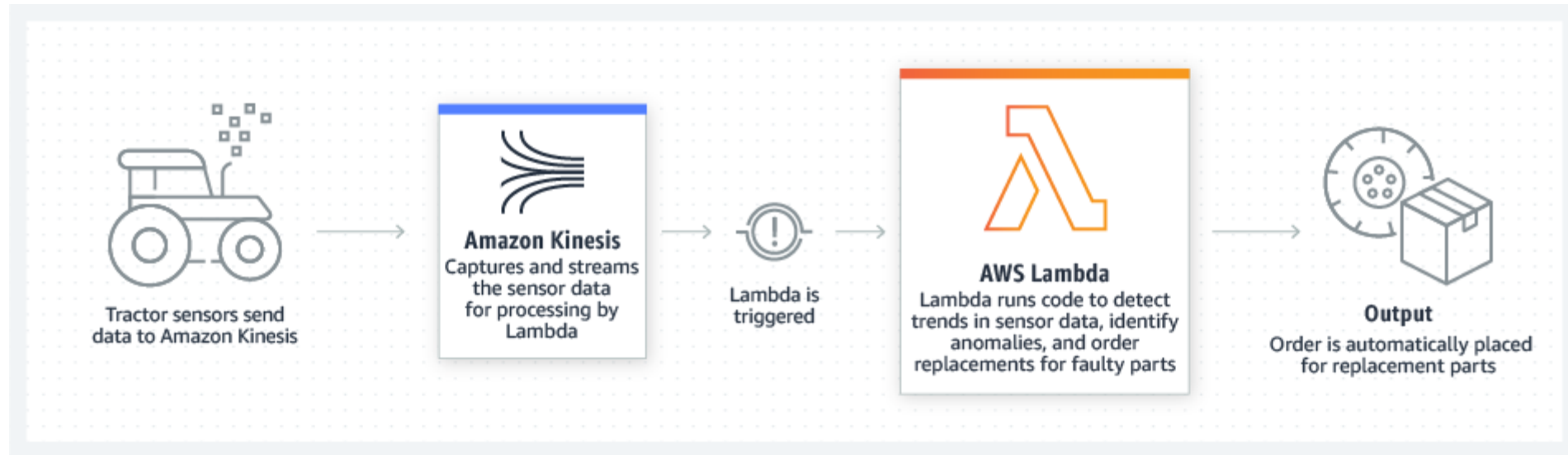- REAL-TIME STREAM PROCESSING

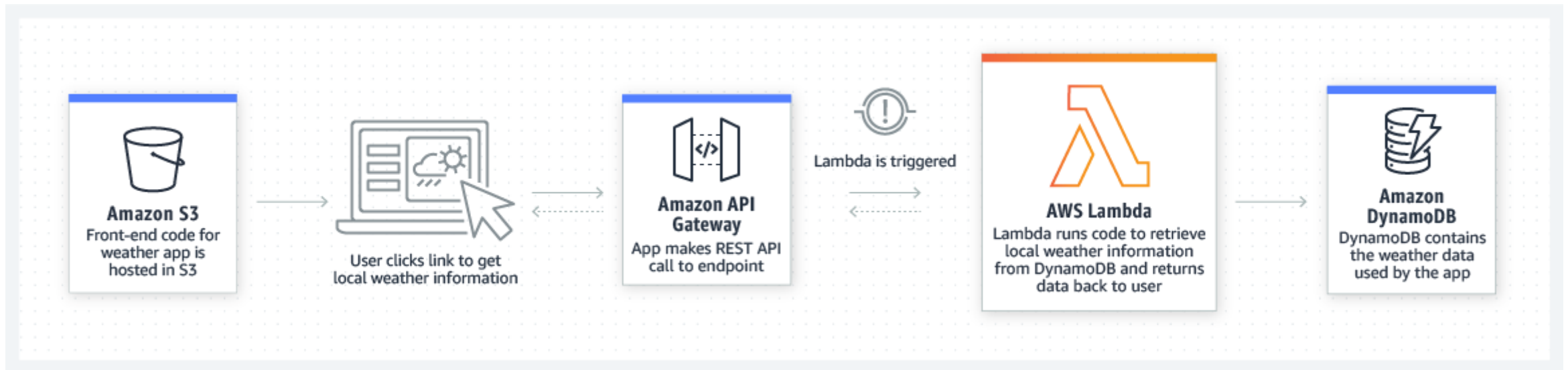# Usecases

- EXTRACT, TRANSFORM, LOAD

# Usecases – IoT backend

- You can build serverless backends using AWS Lambda to handle web, mobile, Internet of Things (IoT), and 3rd party API requests.



Tractor sensors send data to Amazon Kinesis → **Amazon Kinesis** Captures and streams the sensor data for processing by Lambda → Lambda is triggered → **AWS Lambda** Lambda runs code to detect trends in sensor data, identify anomalies, and order replacements for faulty parts → **Output** Order is automatically placed for replacement parts

# Usecases – Web applications

- By combining AWS Lambda with other AWS services, developers can build powerful web applications that automatically scale up and down and run in a highly available configuration across multiple data centers – with zero administrative effort required for scalability, back-ups or multi-data center redundancy.



**Amazon S3**
Front-end code for weather app is hosted in S3

User clicks link to get local weather information

**Amazon API Gateway**
App makes REST API call to endpoint

Lambda is triggered

**AWS Lambda**
Lambda runs code to retrieve local weather information from DynamoDB and returns data back to user

**Amazon DynamoDB**
DynamoDB contains the weather data used by the app

# Hello world - Serverless

- https://aws.amazon.com/getting-started/tutorials/run-serverless-code/

# React Serverless application

- https://medium.com/capgemini-norway/hosting-your-react-application-with-aws-in-30-minutes-623f6539d92d

- https://aws.amazon.com/blogs/mobile/react-serverless-starter-application-with-one-click-aws-deployment-and-hosting/

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