INNOVATE

AI/ML EDITION

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Fraud detection with Amazon Fraud Detector and Amazon SageMaker

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Fraud is not a new problem

HOWEVER, HOW WE RESPOND TO THE THREAT IS CONSTANTLY EVOLVING

Landscape today

Globally each year, tens of billions of dollars are lost to online fraud.[1] Since 2003, the US federal government has made approximately $1.7 trillion in improper payments, with an estimated $206 billion made in FY 2020 alone.[2]

Projected losses are set to increase in the next decade - Improper payments are now anticipated to increase proportionally to new levels of federal spending, from the $1 trillion infrastructure bill, to the anticipated $3.5 trillion budget reconciliation plan.[2]

1. https://aws.amazon.com/machine-learning/ml-use-cases/fraud-detection/
2. https://aws.amazon.com/blogs/publicsector/fighting-fraud-improper-payments-real-time-scale-federal-expenditures/

Reality about fraud

- Fraud investigations cost the same or more than the value of the fraud.

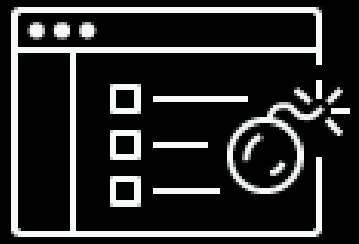
- Companies used rule-based fraud detection applications that aren't accurate enough and can’t keep up with the changing behaviors of fraudsters.

- Those who implemented AI/ML technologies reported a net savings by proactively and more accurately detect and prevent online fraud. These solutions will help reduce revenue losses, avoid brand damage, and provide a frictionless customer online experience while adapting to changing threat patterns.

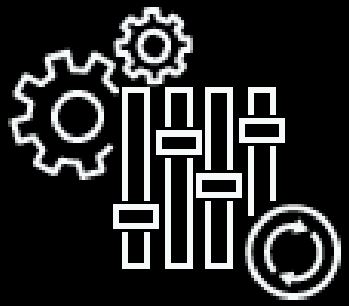
https://aws.amazon.com/machine-learning/ml-use-cases/fraud-detection/

Fraud detection is difficult

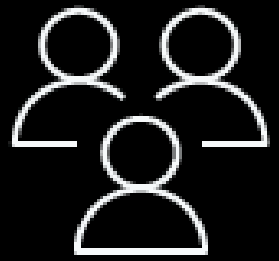
$$$ billions lost to fraud each year



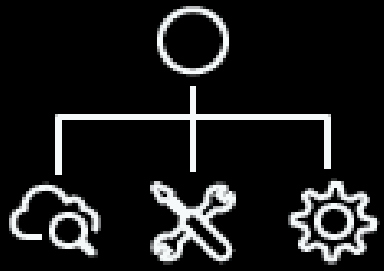
Online business prone to fraud attacks



Bad actors change tactics often



Rules = more human reviews



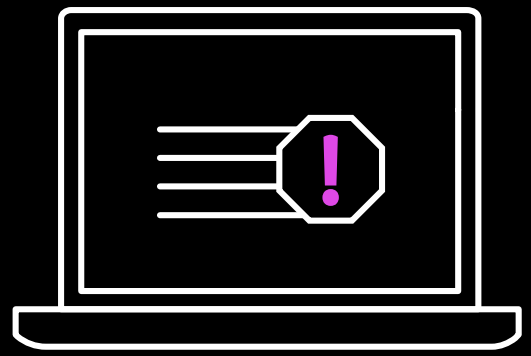
Dependent on others to update detection logic

The fraud detection challenge

"WE'RE NOT SPOTTING NEW FRAUD PATTERNS SOON ENOUGH"

Correctly identifying changing fraud patterns in real time is very difficult

"WE DON'T WANT TO BLOCK LEGITIMATE CUSTOMER ACTIVITY"



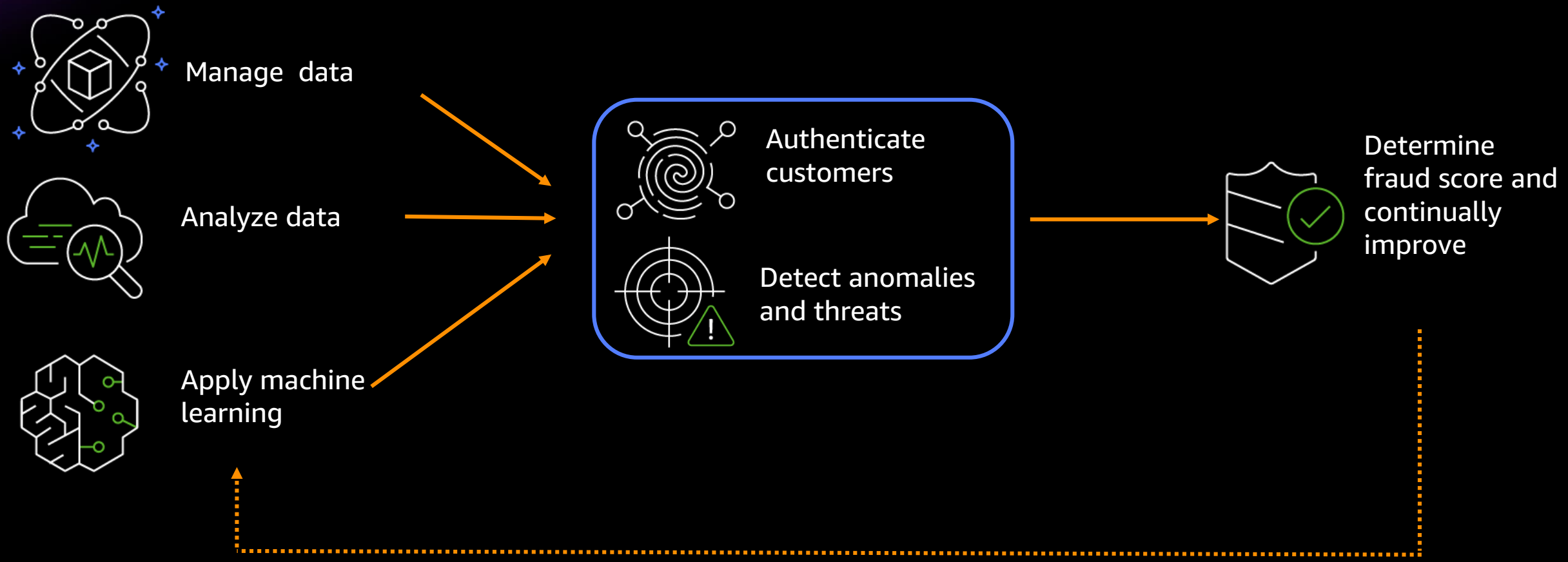
Detecting and preventing fraud adds friction to the customer experience

"COSTS OF REVIEWING SUSPICIOUS ACTIVITY ARE TOO HIGH"

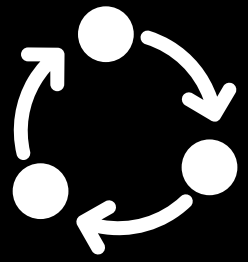
Increases in manual reviews of suspicious activity drives up staffing costs

Use all the data available

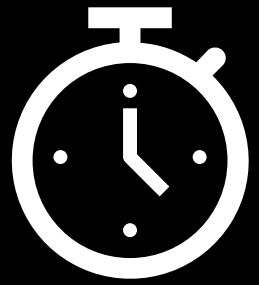
As the landscape evolves and fraudsters improve their methods, the way to level the playing field is to analyze ***all*** available data—historical and real time—and apply machine learning to decipher legitimate transactions from illegitimate.



Machine learning for fraud detection

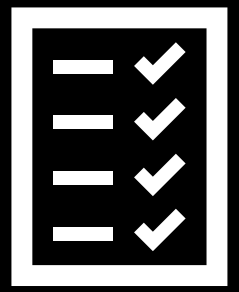


Dynamic

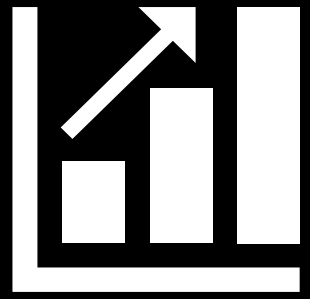


Real-time

Self-improving



Maintainable



Scalable

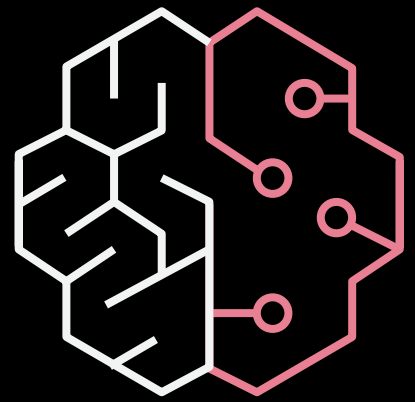
Amazon Fraud Detector

A fraud detection service that makes it easy for businesses to use machine learning to detect online fraud in real-time, at scale.

20+ years of experience fighting fraud at Amazon

Types of online fraud

- Bad payments
- Fake accounts
- Fake reviews
- Promotion abuse
- Account takeovers



Machine learning
to fight fraud

https://aws.amazon.com/machine-learning/ml-use-cases/fraud-detection/

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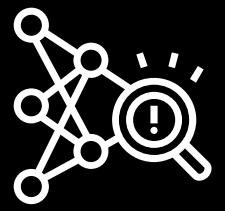
Detect common types of online fraud

EASILY IDENTIFY POTENTIALLY FRAUDULENT ONLINE ACTIVITIES



- New account fraud, within an account sign-up process
- Online payment
- Guest checkout fraud
- Promotion and loyalty program abuse
- Online identity fraud
- Loyalty account protection

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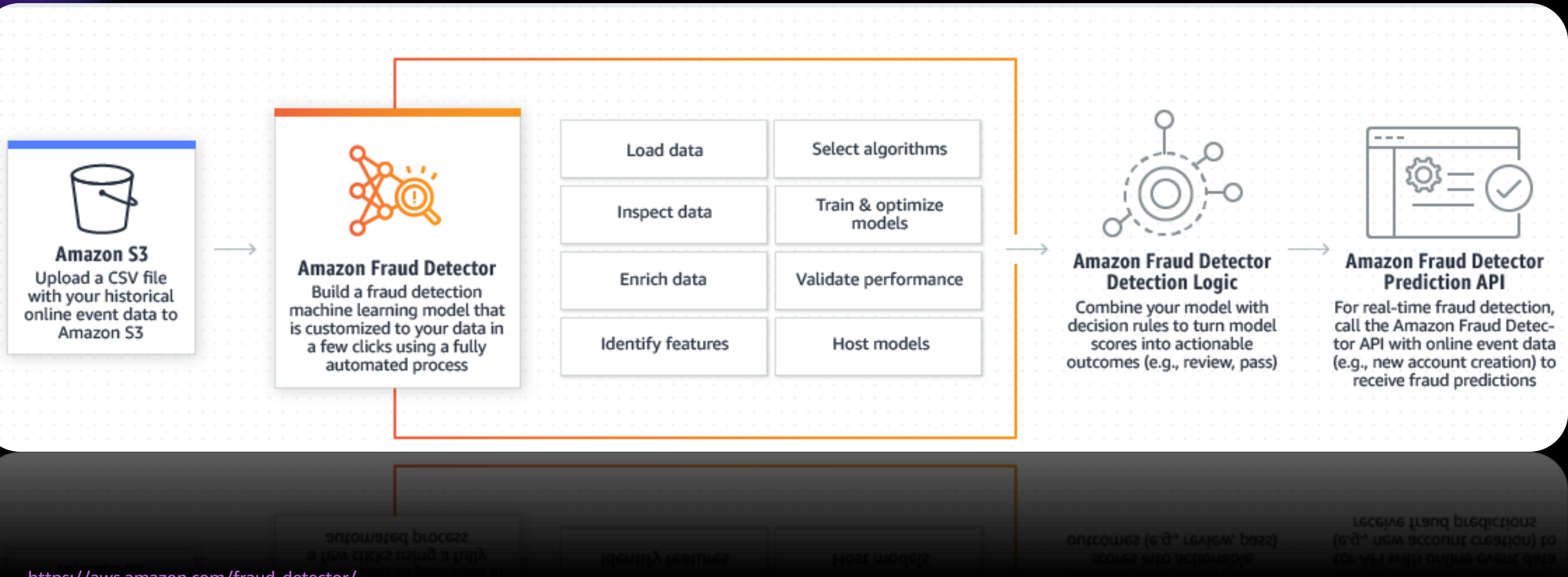
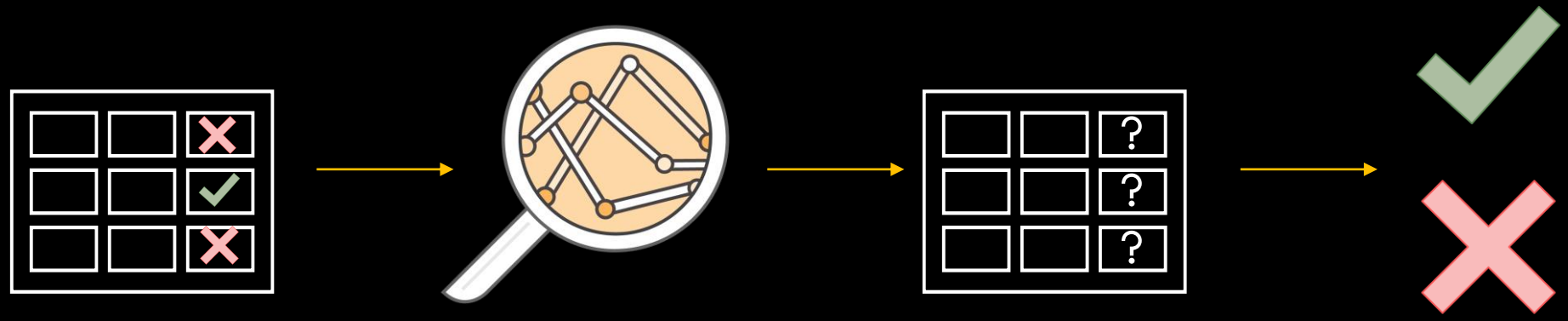
How it works



https://aws.amazon.com/fraud-detector/

Demo 1

Fraud detection & supervised learning



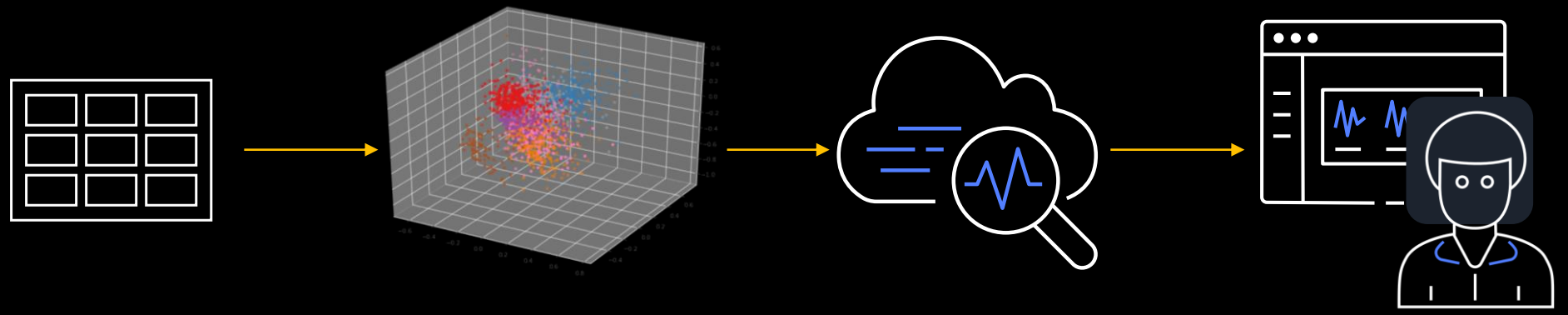
Feed labeled data to algorithm

Discover relationships between input and output

Apply solution to unseen data

Make predictions

Fraud detection & unsupervised learning



Feed raw data to algorithm

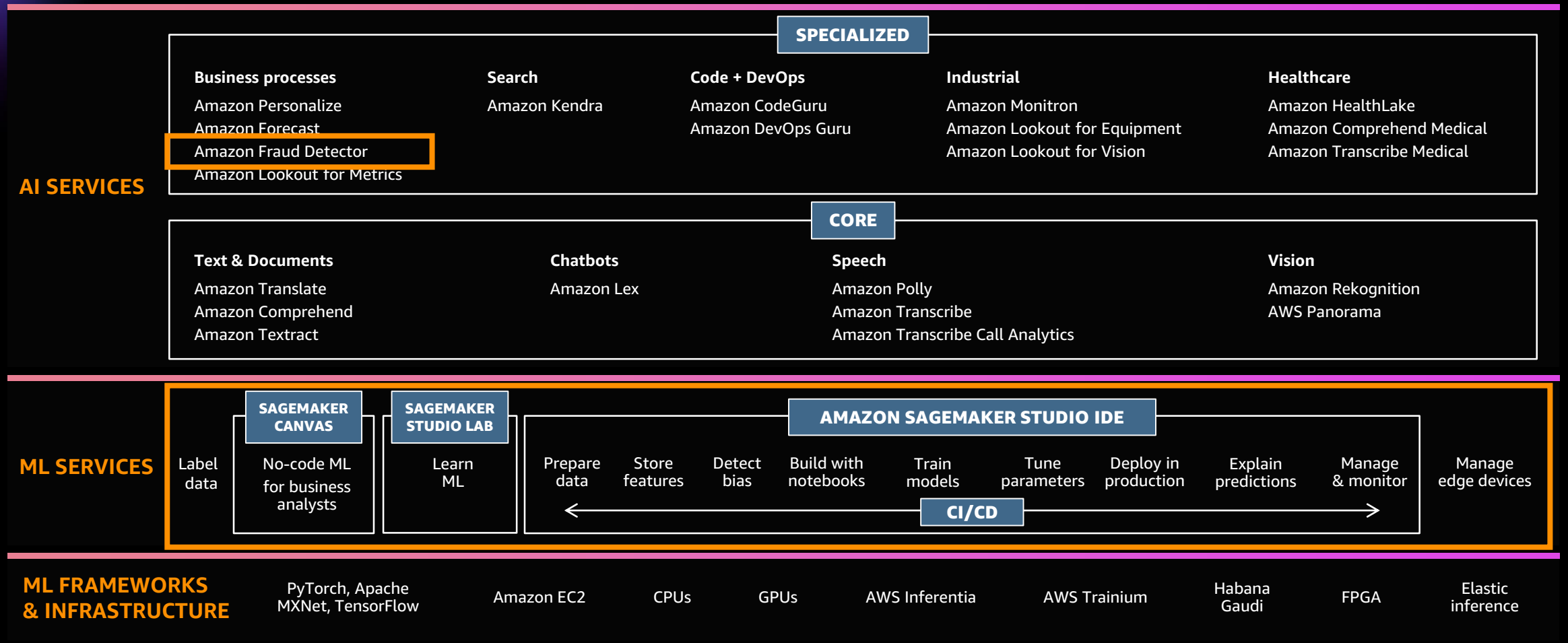
Uncover hidden patterns

Automatically flag anomalies

Investigate potential fraud

The AWS ML Stack

BROADEST AND MOST COMPLETE SET OF MACHINE LEARNING CAPABILITIES



Amazon SageMaker

Prepare

Build

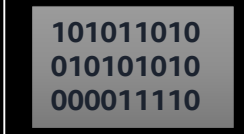
Train & Tune

Deploy & Manage

Web-based IDE for machine learning

Automatically build and train models

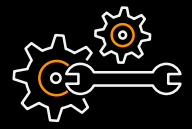
Fully managed data processing jobs and data labeling workflows



One-click collaborative notebooks and built-in, high performance algorithms and models

One-click training

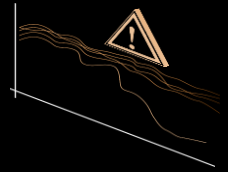
Debugging and optimization



Visually track and compare experiments

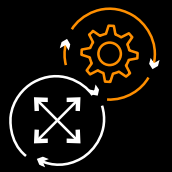
One-click deployment and auto scaling

Automatically spot concept drift



Add human review of predictions

Fully managed with auto-scaling for 75% less



Collect and prepare training data

Choose or bring your own ML algorithm

Set up and manage environments for training

Train, debug, and tune models

Manage training runs

Deploy model in production

Monitor models

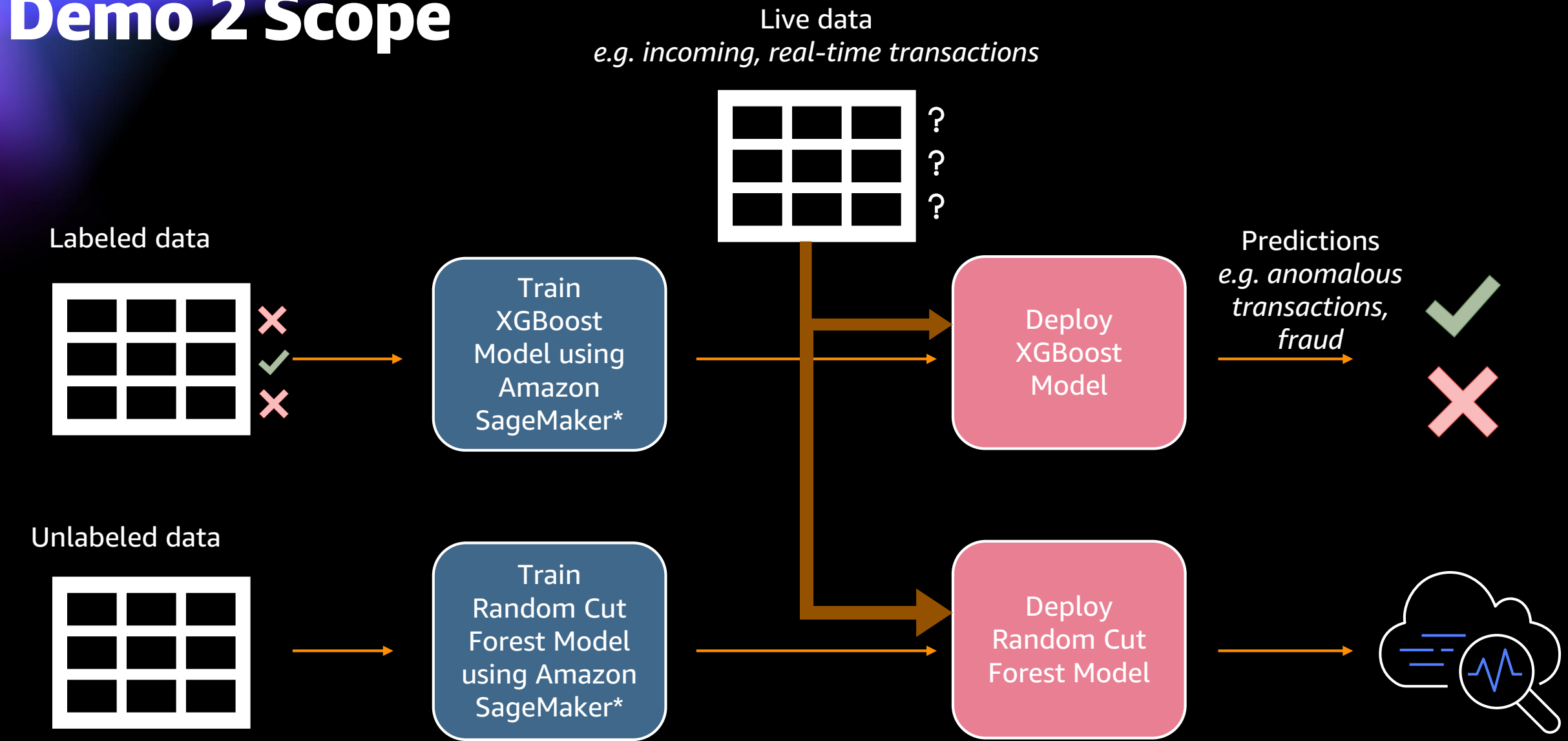
Validate predictions

Scale and manage the production environment

CI/CD

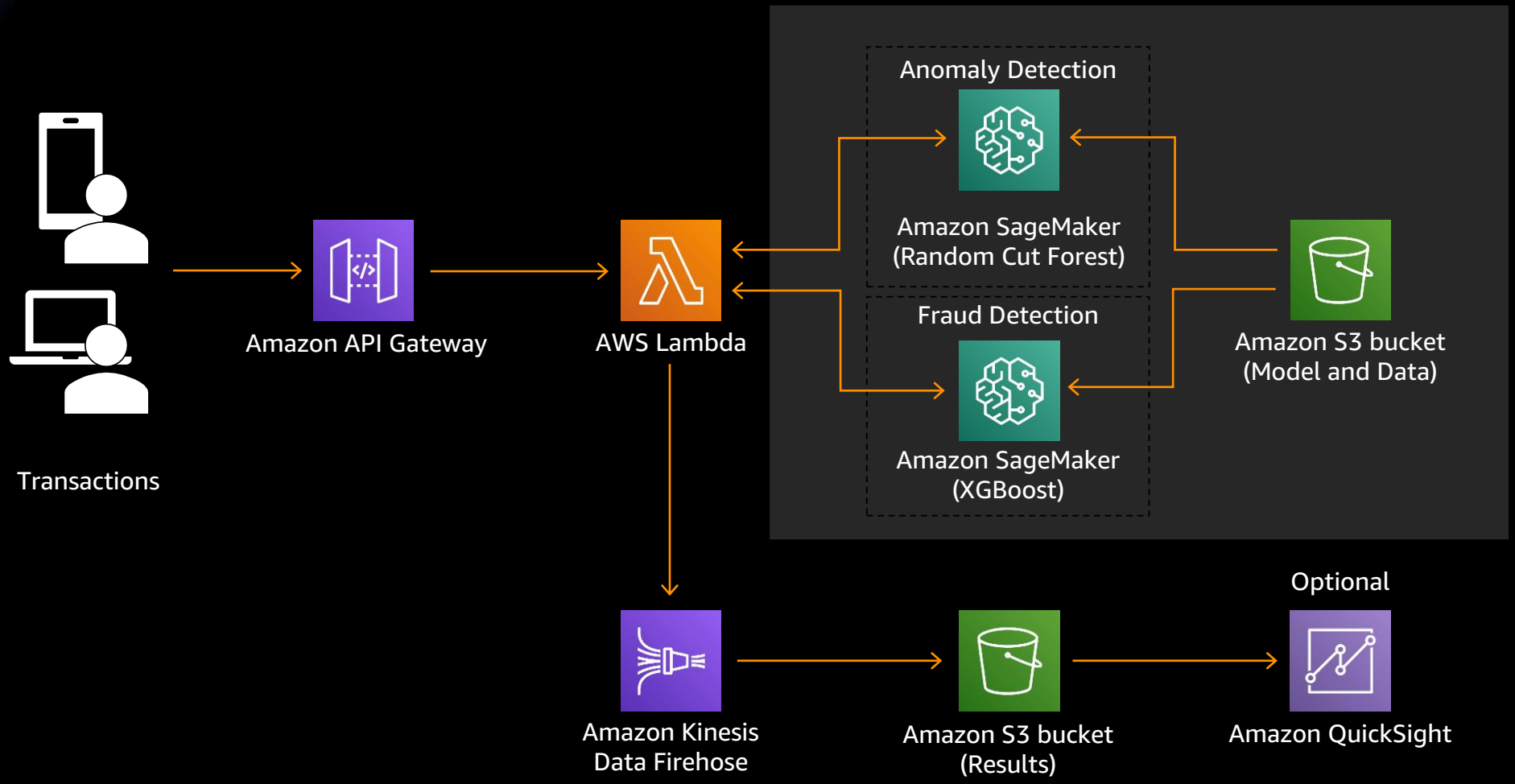
aws

Demo 2 Scope



* Amazon SageMaker built-in algorithm

Demo 2 Architecture



Demo 2

Resources to get started

- AWS Fraud Detection Machine Learning solutions link
- Fraud Detection using AWS machine learning documention link
- Amazon Fraud Detector free trial link

  ✓ *Get up to 30,000 online fraud insights, transaction fraud insights, and rules-based predictions per month free for two months with AWS Free Tier.*
- Amazon Fraud Detector technical guide link
- Amazon Fraud Detector user guide link
- Amazon Fraud Detector customer testimonials link
- AWS ML blog: Predict fraudulent orders with Amazon Fraud Detector link

Visit the AI & Machine Learning resource hub for more resources

Dive deeper into these resources, get inspired and learn how you can use AI and machine learning to accelerate your business outcomes.

- The machine learning journey e-book
- 7 leading machine learning use cases e-book
- A strategic playbook for data, analytics, and machine learning e-book
  Accelerate machine learning innovation with the right cloud services & infrastructure e-book
- Choosing the right compute infrastructure for machine learning e-book
- Improving service and reducing costs in contact centers e-book
- Why ML is essential in your fight against online fraud e-book
- … and more!

https://bit.ly/3mwi59V

Visit resource hub

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Validate your expertise

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Thank you!

Xavier Hutchinson