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AIM213

# Pioneering user experiences at StockX with Amazon Personalize

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# Agenda

Current state of personalization in online retail

Overview of Amazon Personalize

Mapping key Amazon Personalize features to retail use cases

Demo

StockX’s journey with Amazon Personalize





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# The current landscape

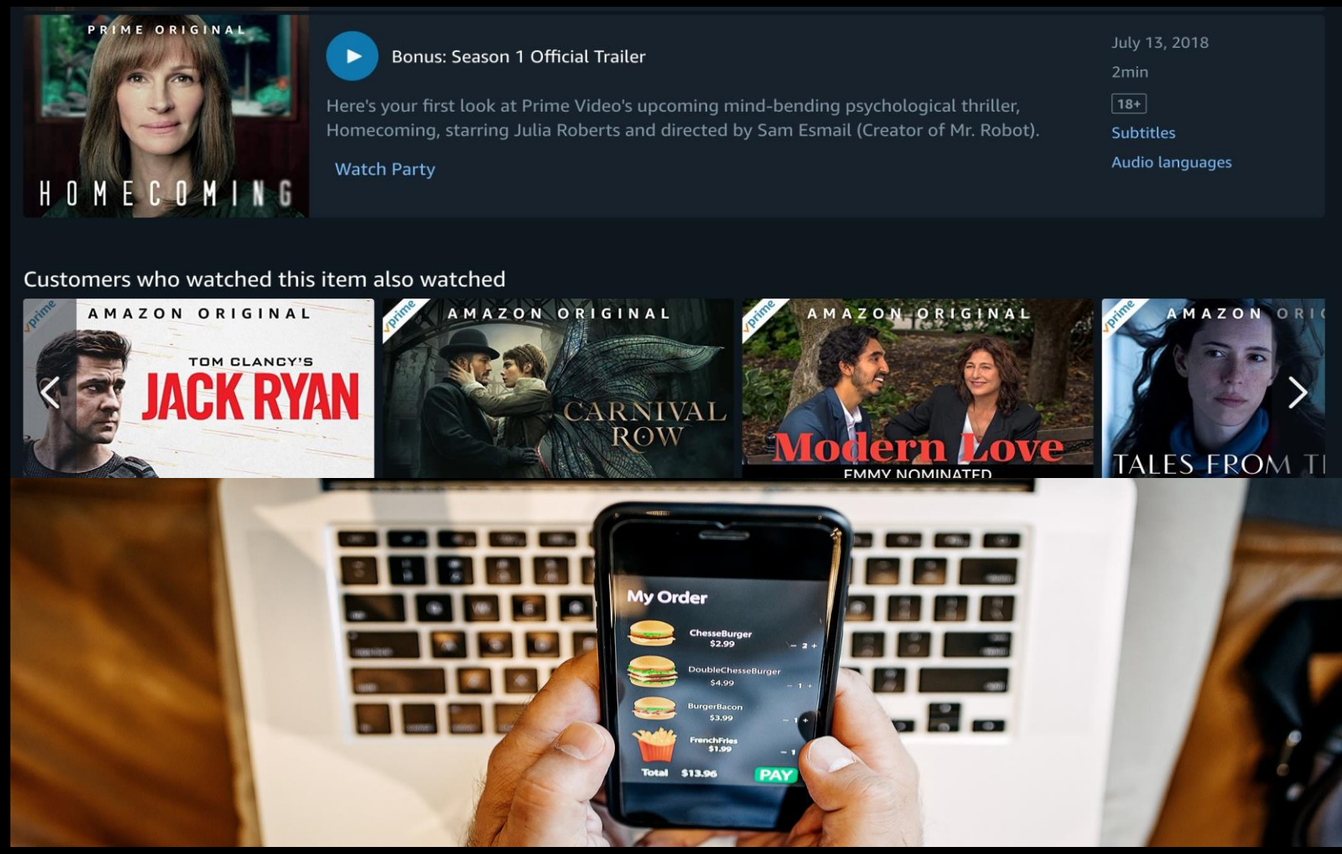
Market leaders are investing in personalization to meet customer expectations

**63%**

of customers see **PERSONALIZATION AS THE STANDARD LEVEL OF SERVICE**

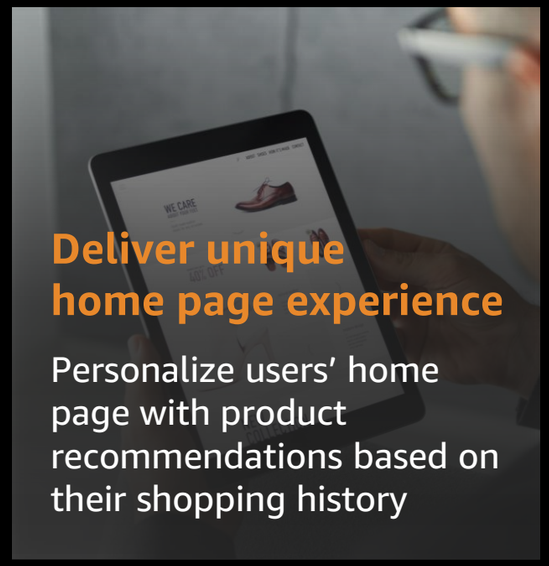
https://www.business2community.com/marketing/30-amazing-personalization-statistics-02289044





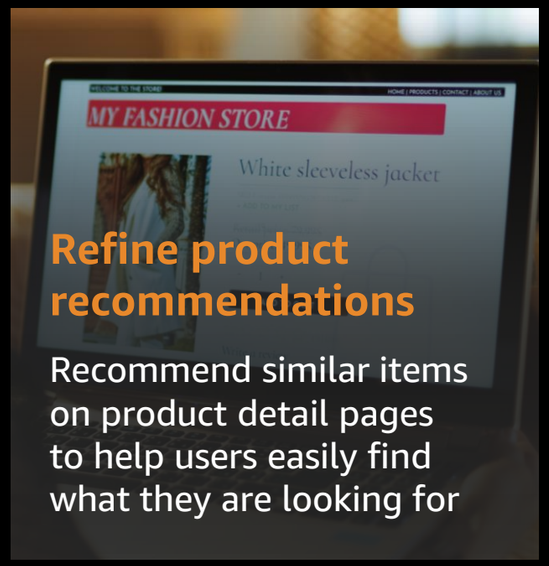
# Foundational use cases in online retail

Drive business growth by enhancing your personalization



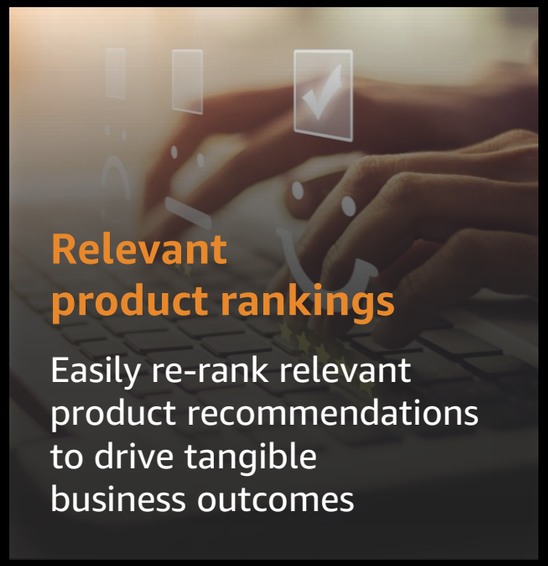
### Deliver unique home page experience

Personalize users' home page with product recommendations based on their shopping history



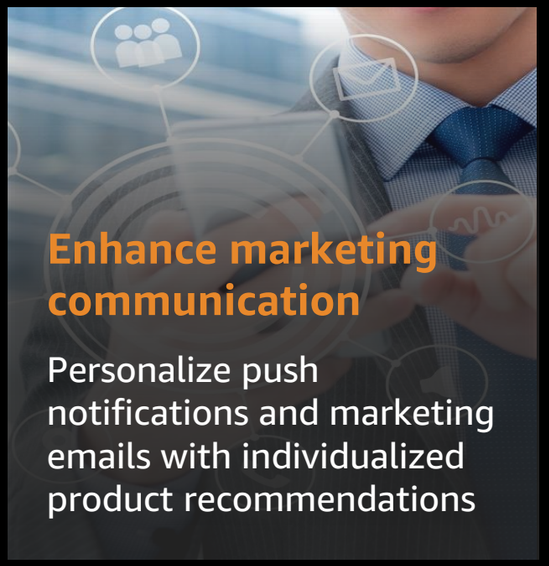

### Refine product recommendations

Recommend similar items on product detail pages to help users easily find what they are looking for



### Relevant product rankings

Easily re-rank relevant product recommendations to drive tangible business outcomes

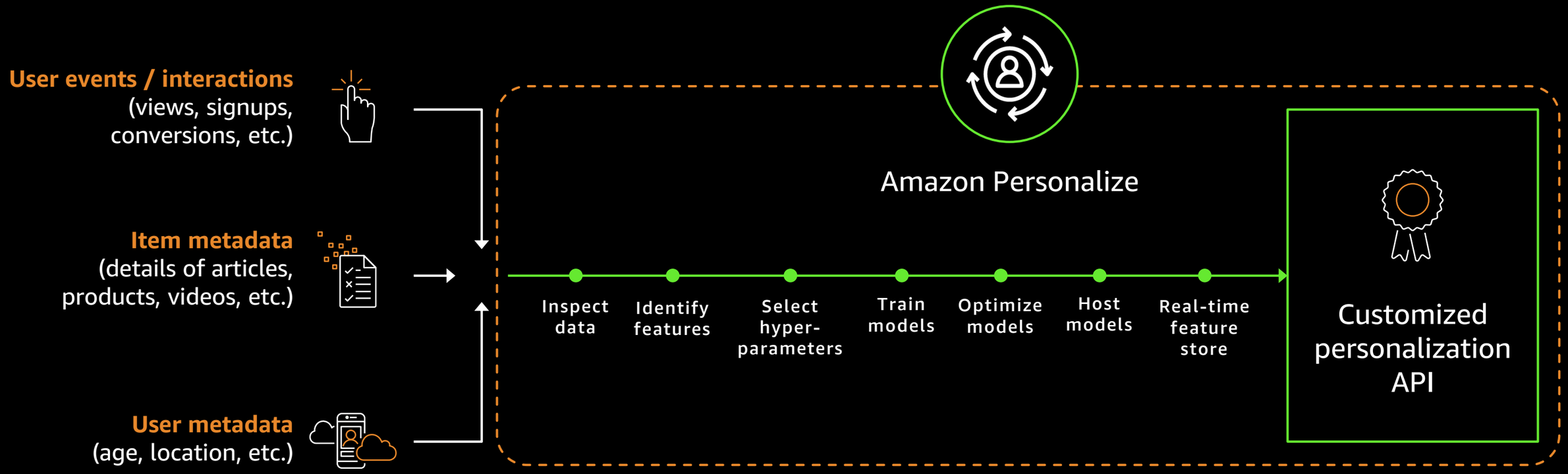


### Enhance marketing communication

Personalize push notifications and marketing emails with individualized product recommendations

HOW IT WORKS

# Amazon Personalize



# Key features of Amazon Personalize

- **User impressions**
  Modeling impression data, or items that are seen but not clicked
- **Item exploration**
  Balance between exploring for new items and items a user is likely to find relevant
- **Filtering for events**
  Exclude or include items to recommend based on event criteria
- **Filtering based on metadata**
  Exclude or include items to recommend based on item or user criteria
- **Cold start**
  Include recommendations for new users and new items

# Demo
## Retail Demo Store

https://github.com/aws-samples/retail-demo-store



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Retail Demo Store | Amazon Personalize

Not Secure | d1txfzq0tqq2j9.cloudfront.net/?#/

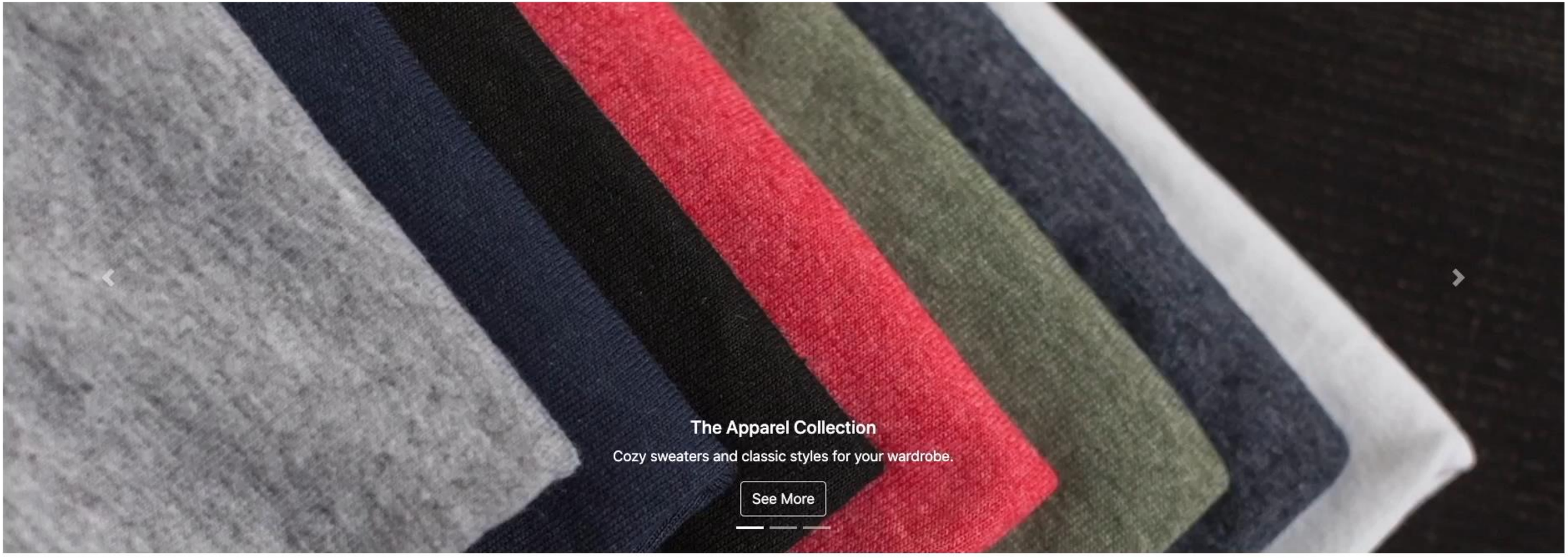
Free Shipping on All Orders over $100

Retail Demo Store

demo

Search

Featured Footwear Housewares Apparel Jewelry Beauty Electronics Accessories Outdoors



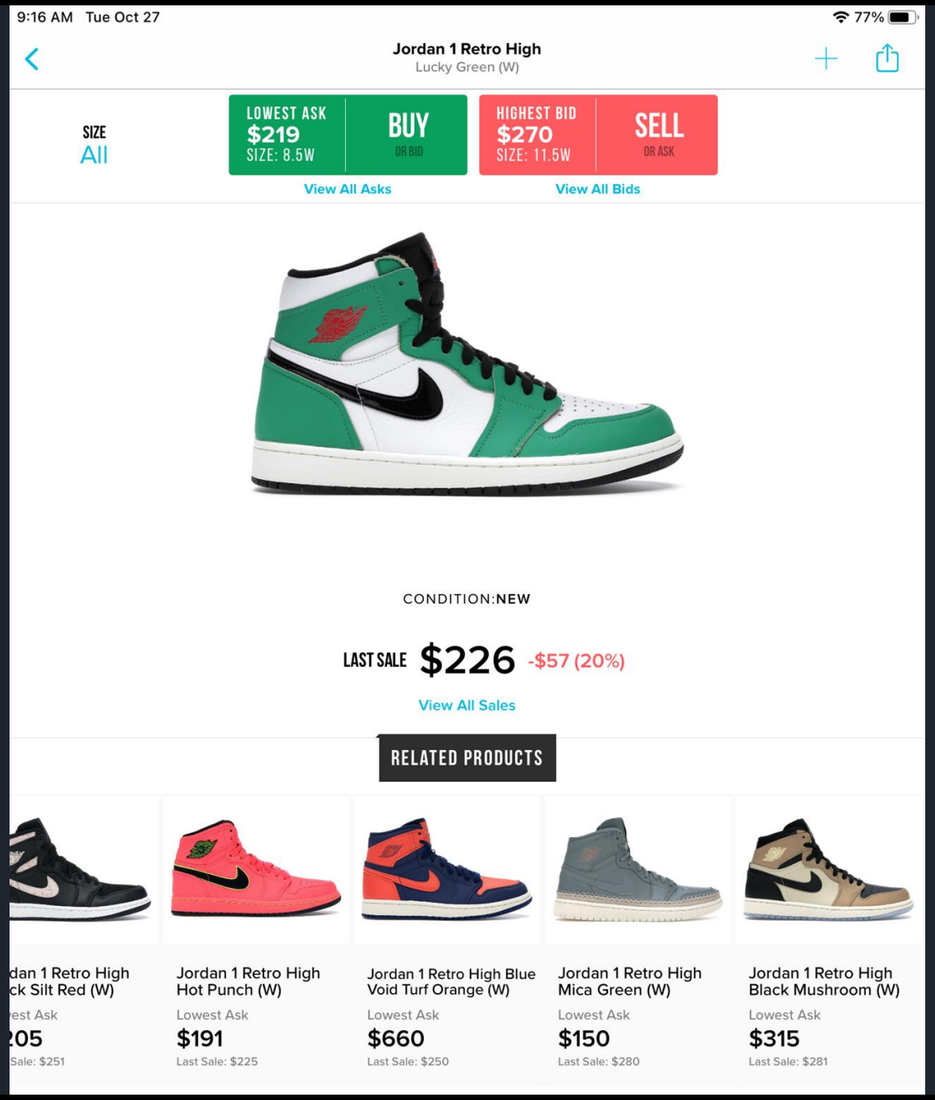


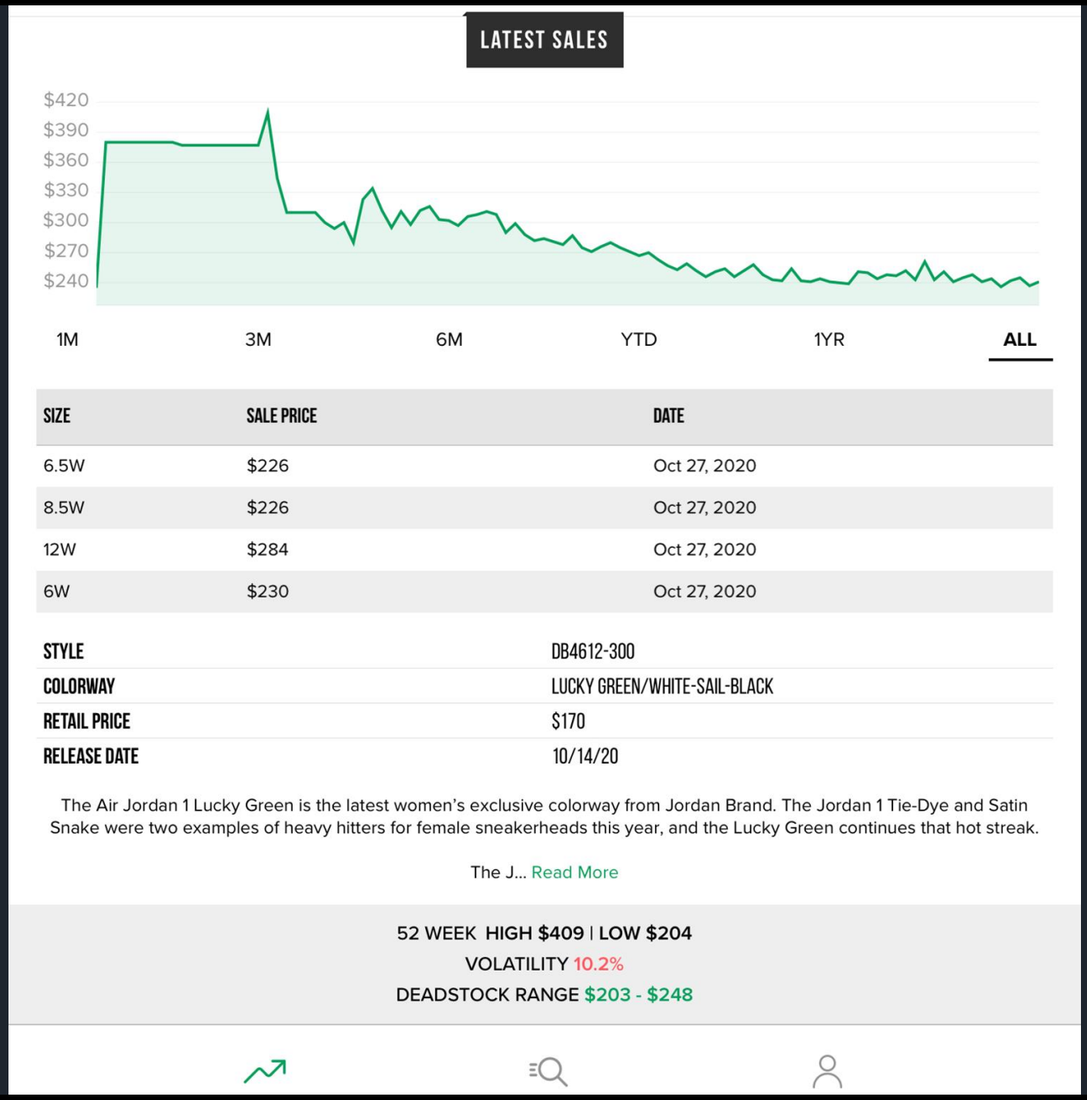

Blaine Dietrich

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# StockX




| SIZE | SALE PRICE | DATE |
|---|---|---|
| 6.5W | $226 | Oct 27, 2020 |
| 8.5W | $226 | Oct 27, 2020 |
| 12W | $284 | Oct 27, 2020 |
| 6W | $230 | Oct 27, 2020 |

| | |
|---|---|
| STYLE | DB4612-300 |
| COLORWAY | LUCKY GREEN/WHITE-SAIL-BLACK |
| RETAIL PRICE | $170 |
| RELEASE DATE | 10/14/20 |

The Air Jordan 1 Lucky Green is the latest women's exclusive colorway from Jordan Brand. The Jordan 1 Tie-Dye and Satin Snake were two examples of heavy hitters for female sneakerheads this year, and the Lucky Green continues that hot streak.

The J... Read More

52 WEEK HIGH $409 | LOW $204
VOLATILITY 10.2%
DEADSTOCK RANGE $203 - $248

# Machine Learning team objectives

Increase user curiosity and discoverability of products

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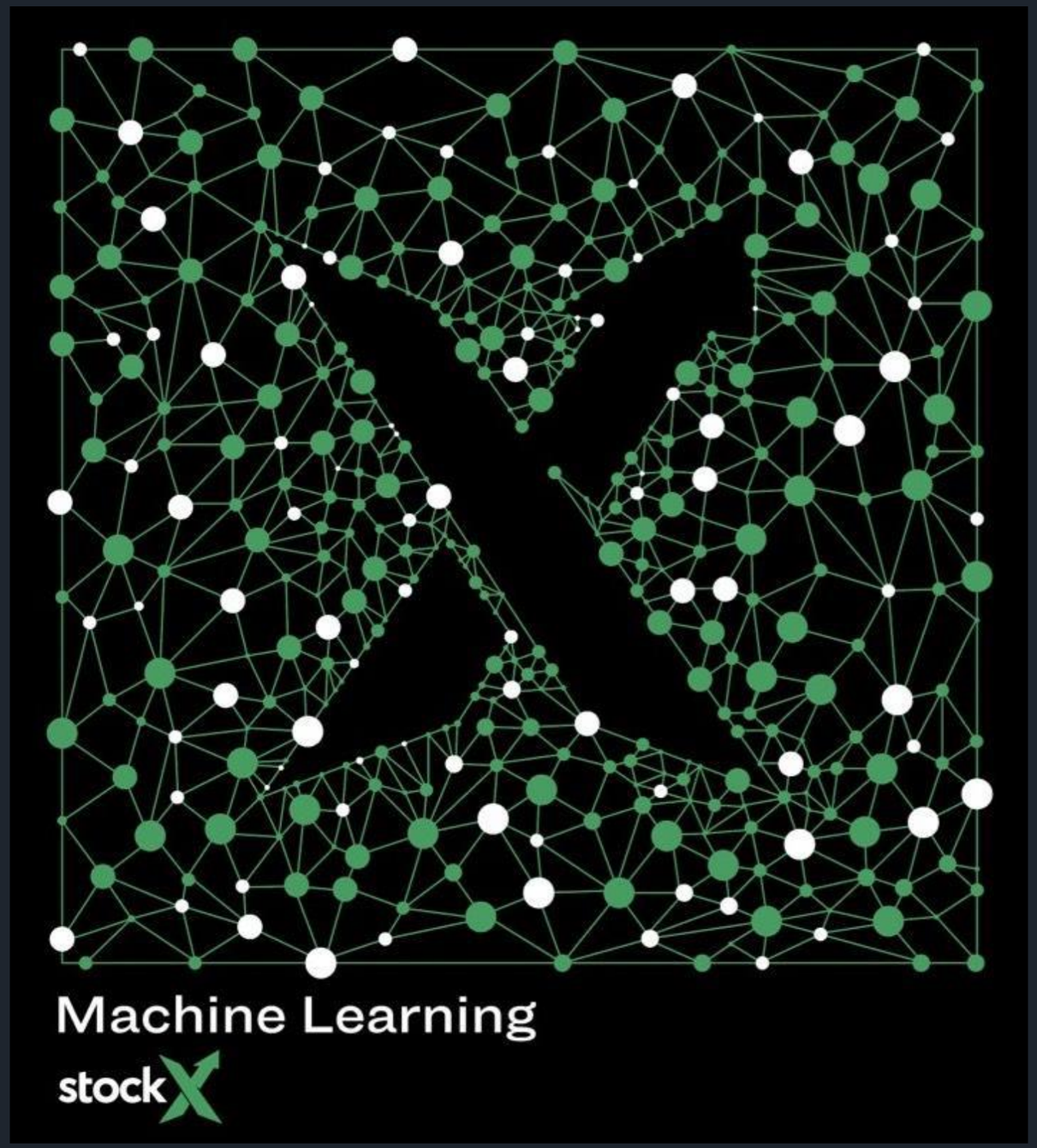
Drive conversion

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Scale for holiday traffic and other spikes

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Create adaptive ML models



# Personalization timeline

## Early 2019

- Static experience for all users (no ML features)
- Users mostly focused on finding specific dropped products

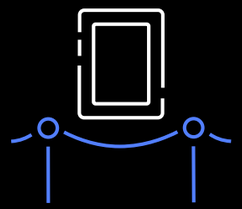
**Amazon Personalize**

## 2020

- Personalized experience for every user
- Broadened product discovery – users can find more products they love
- Successful precedent for adding ML features

# How we store user interaction data

1



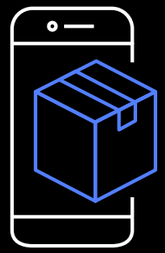
Data creates personalized experiences

2



Product categories have their own home screen

3



Recommended products for the home screen

4



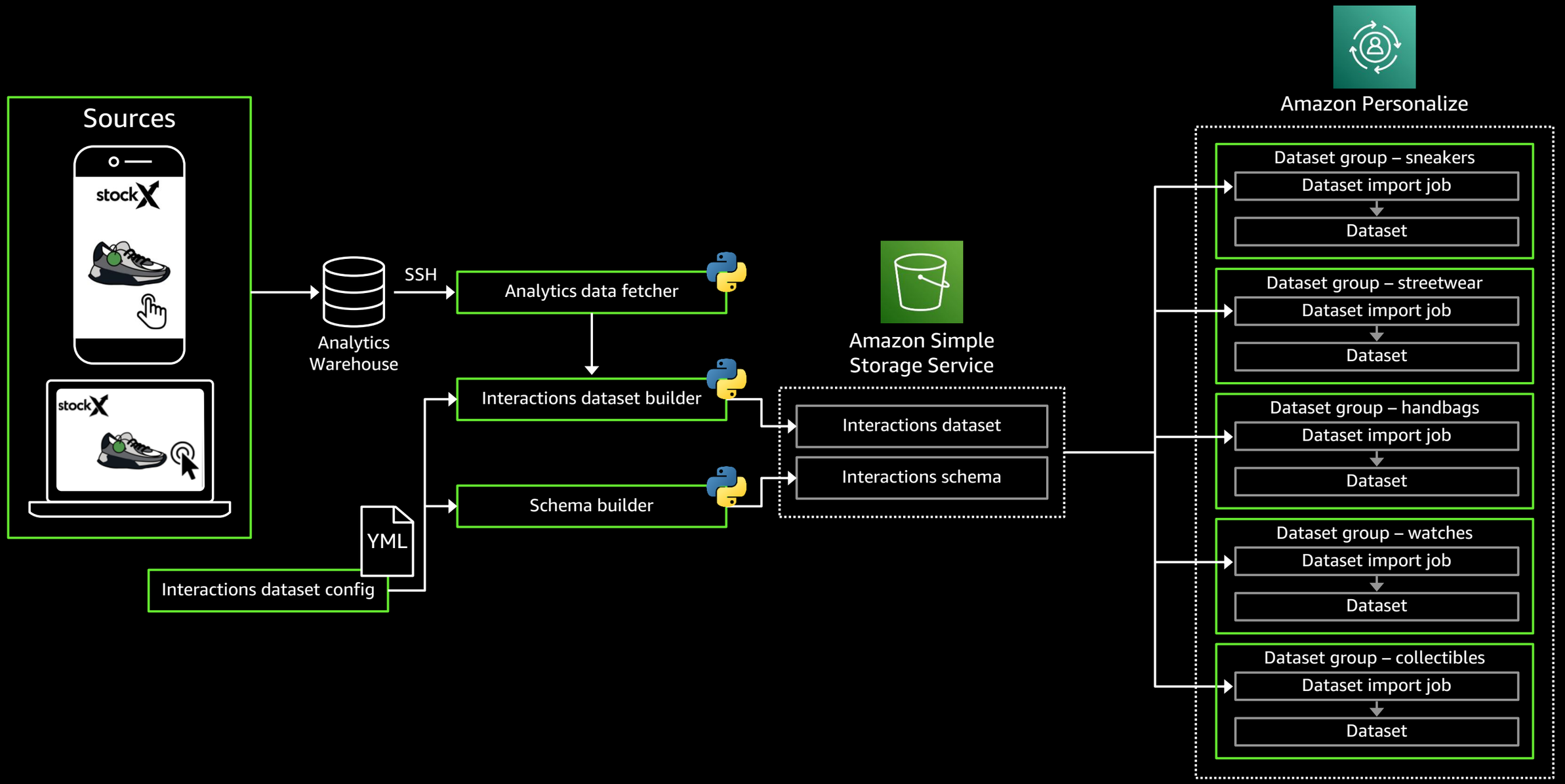
Data on how a user interacts is collected

5

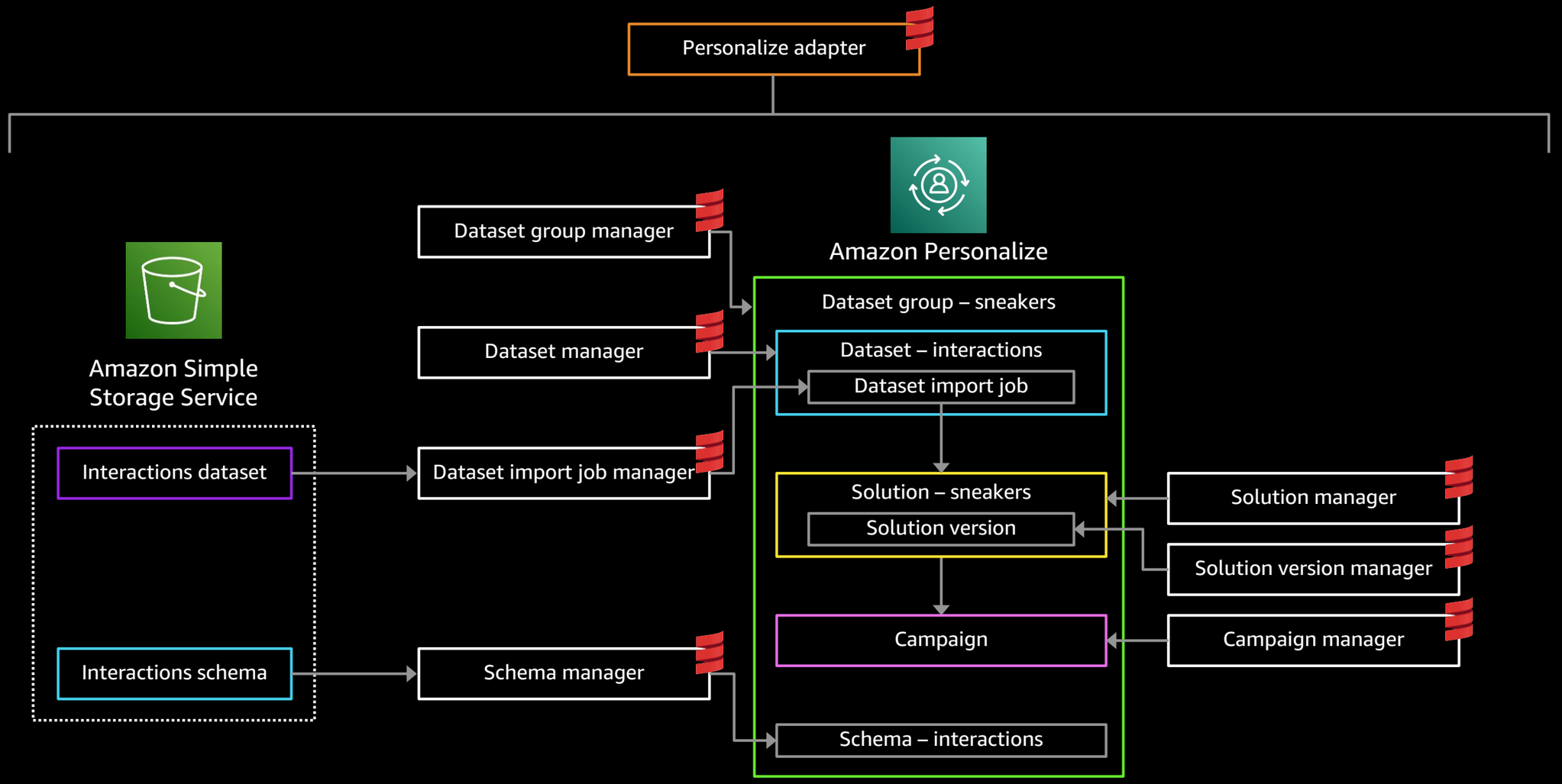


A python ETL tool is used to wrangle the data from the data warehouse

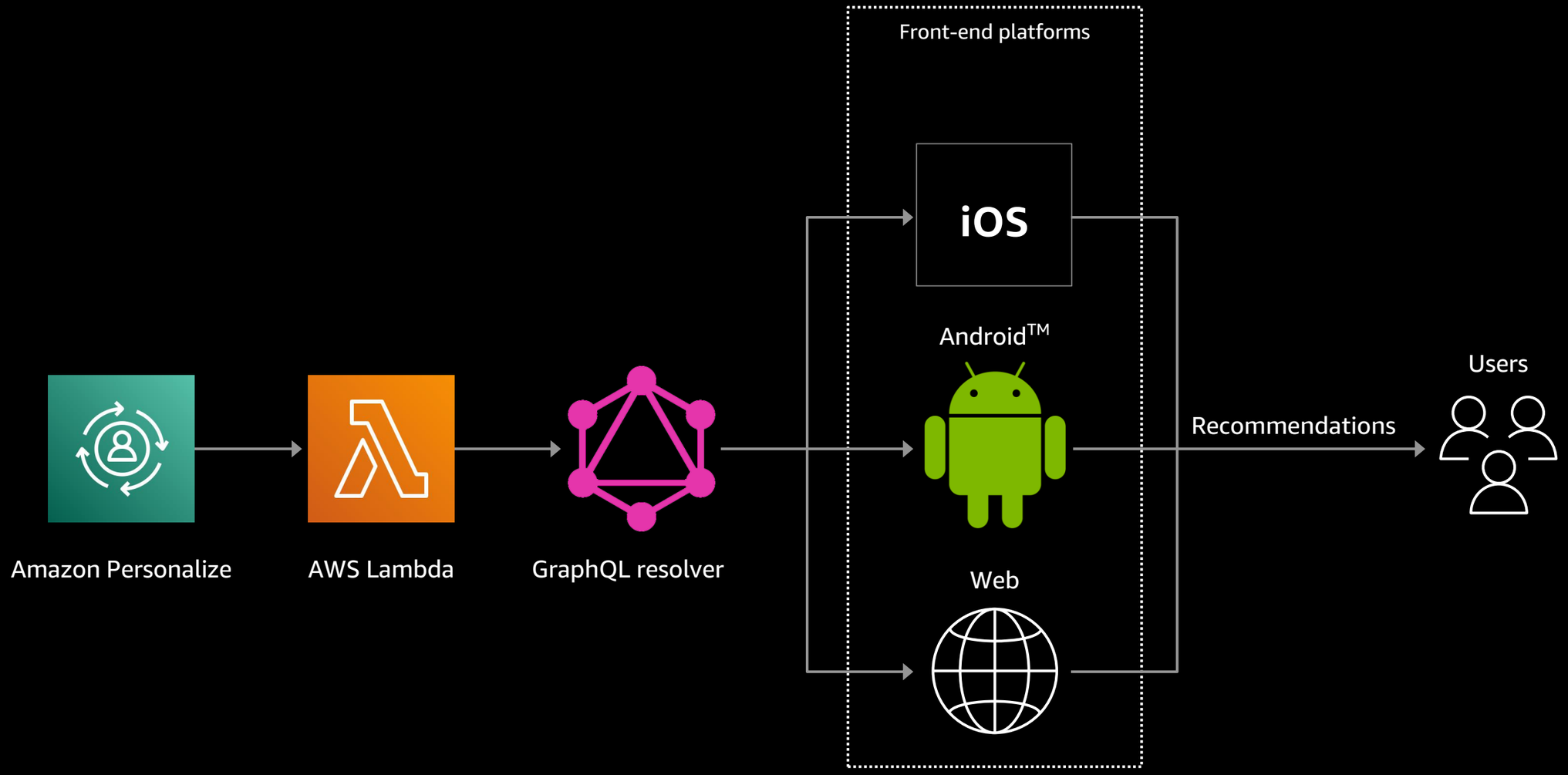
# Batch user interaction ingestion



# Personalize infrastructure creation

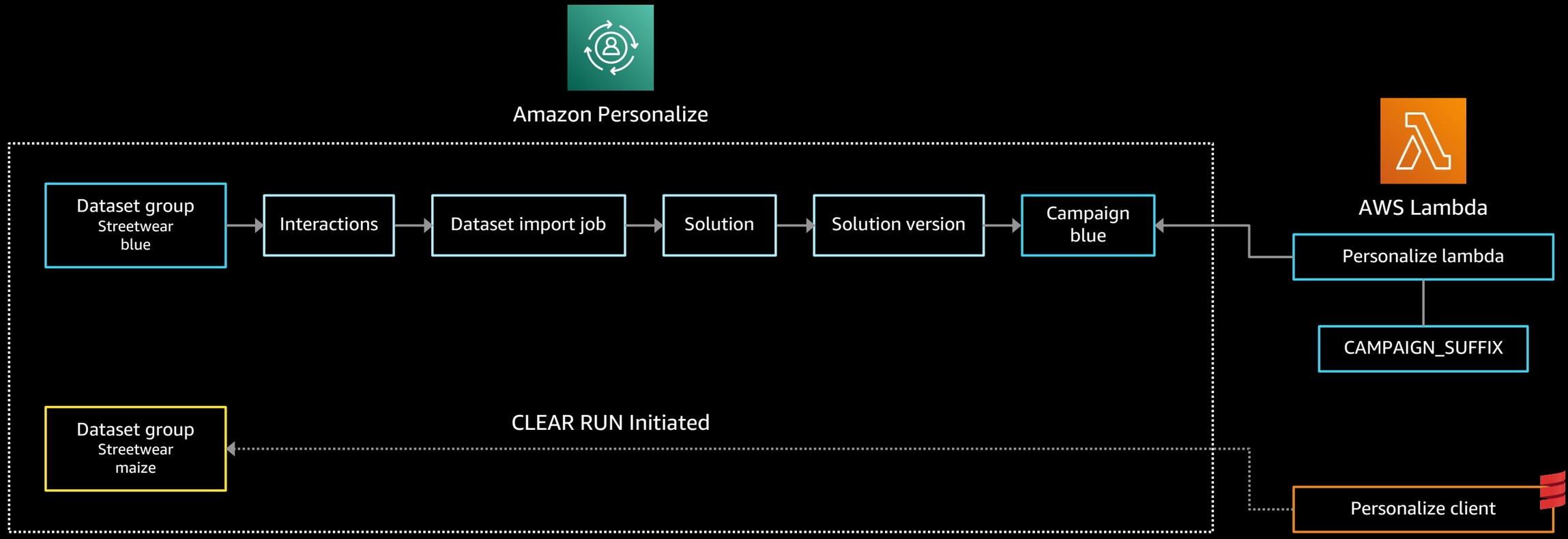


# Personalize tech stack

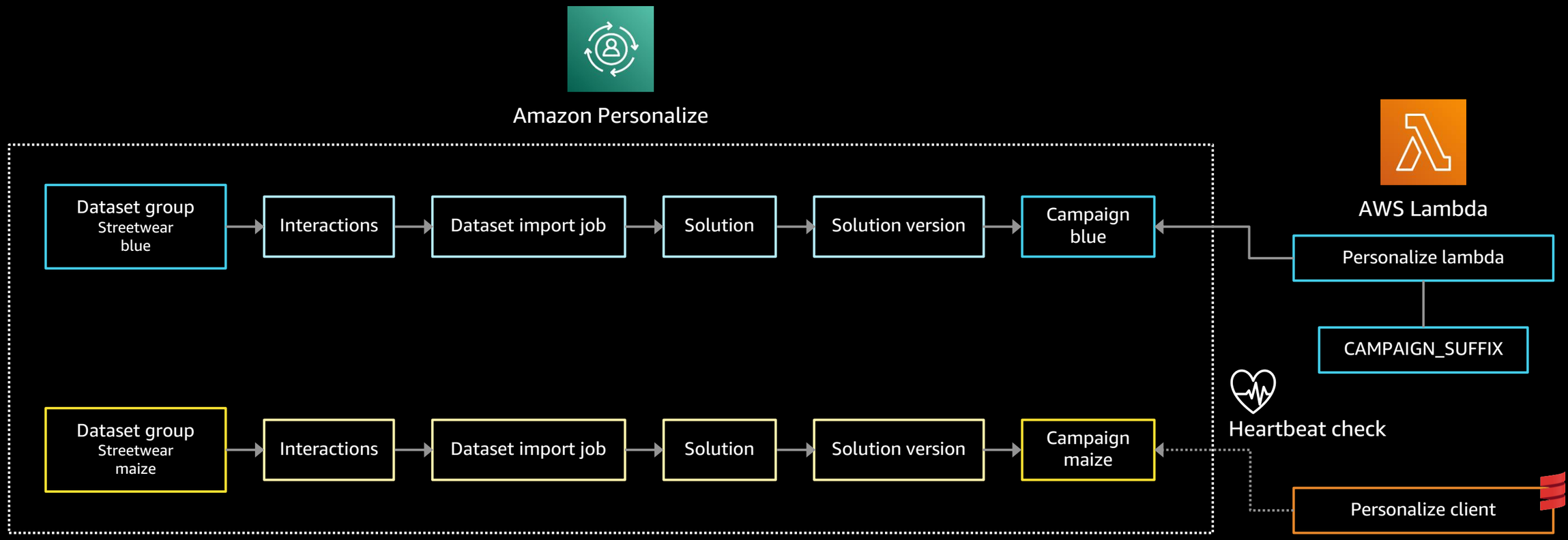



Android is a trademark of Google LLC.

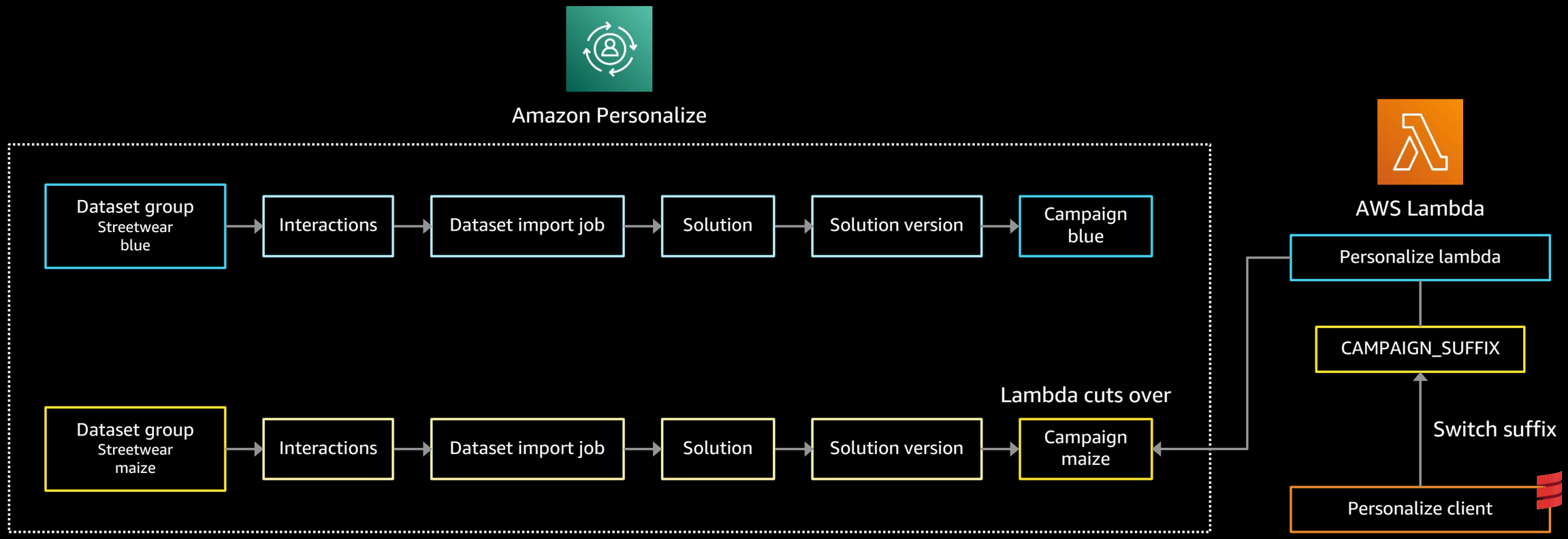
# Campaign switching strategy



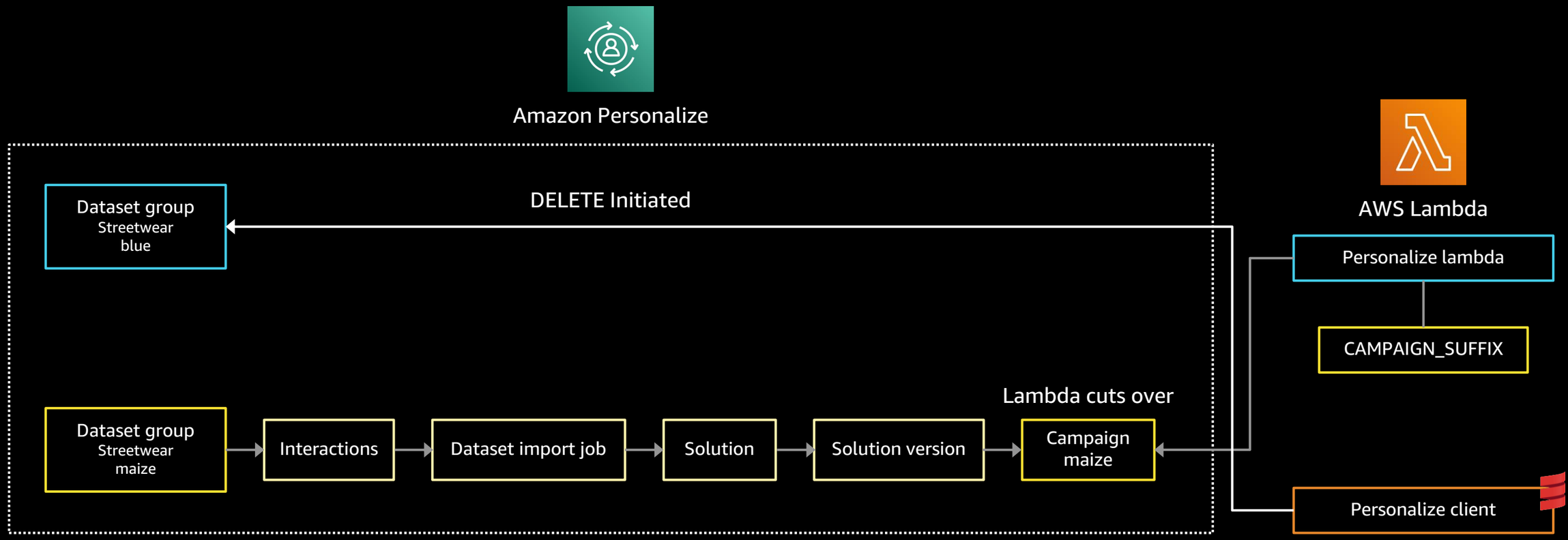
# Campaign switching strategy



# Campaign switching strategy



# Campaign switching strategy

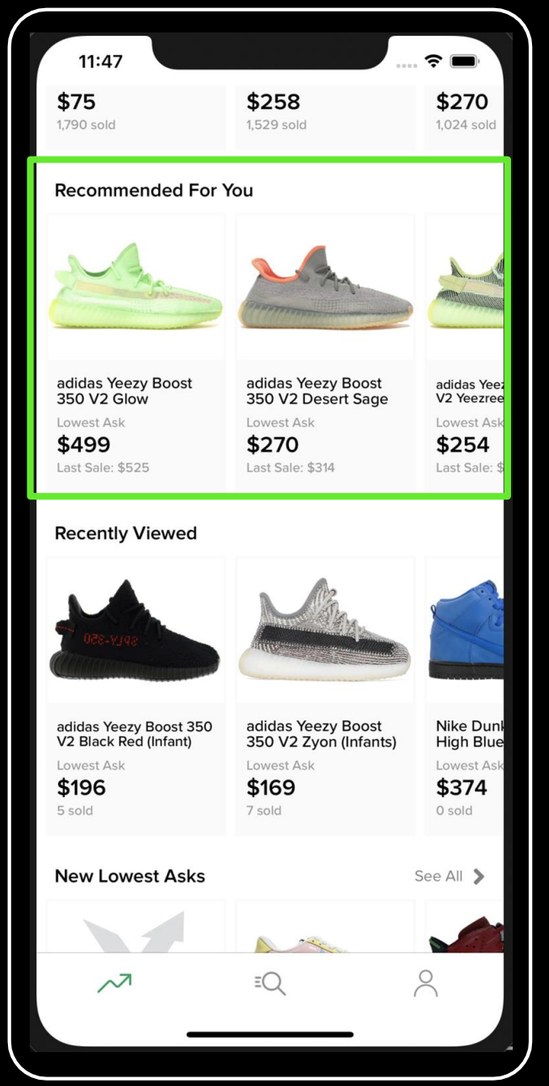


# Recommended for You: A/B test

1. Created a testing document
   - Chose testing population (web platform)
   - Chose test length (two weeks)
   - Defined key metrics (CTR and conversion)
2. Created experiment
3. Started experiment
   - First rolled out to very small user subset
   - Subsequently increased the testing population
4. Generated A/B test readout
   - Overall customer engagement with home page increased by 50%

# Recommended for You on StockX

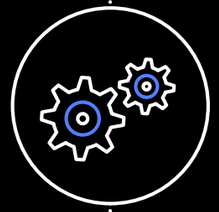


# Conclusions



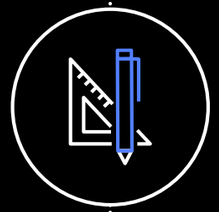
Build to **scale**



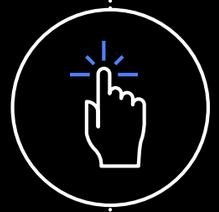
**Automate** as much as possible



The job isn’t done once you have a **trained model**



**Measuring** the impact of your feature is necessary



Users like **personalization!**



**Recommended for You paved the way** for more user personalization at StockX

# Thank you!

## Our Machine Learning team

Blaine Dietrich

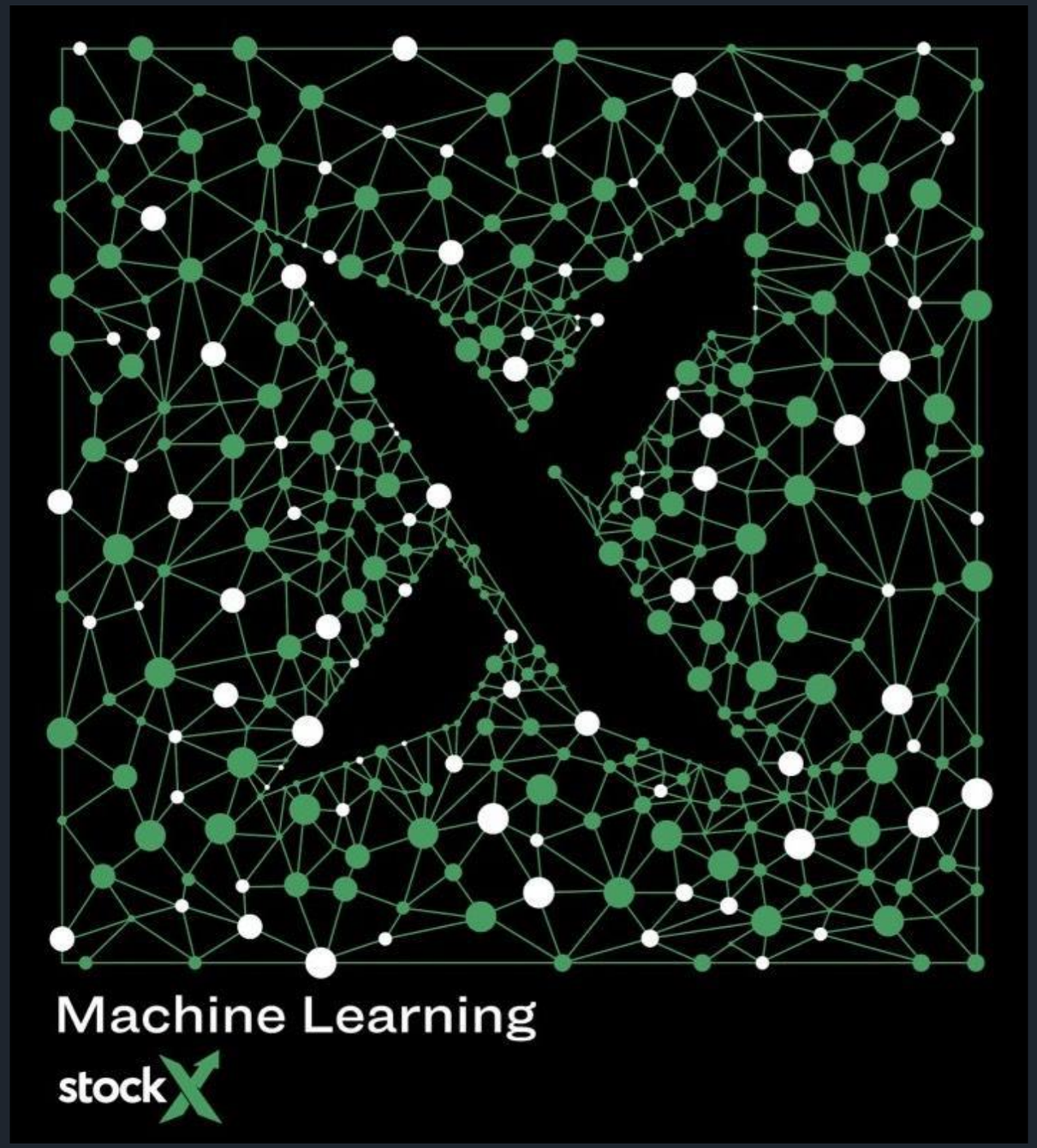
Nic Roberts II

Jason Prasad

Sam Bean

## We are hiring!

For more information on how we made Recommended for You, check out our AWS blog post at https://aws.amazon.com/blogs/machine-learning/pioneering-personalized-user-experiences-at-stockx-with-amazon-personalize/



# Resources

StockX/Amazon Personalize blog post

https://aws.amazon.com/blogs/machine-learning/pioneering-personalized-user-experiences-at-stockx-with-amazon-personalize/

Amazon Personalize blog posts

https://aws.amazon.com/blogs/machine-learning/category/artificial-intelligence/amazon-personalize/

Developer documentation

https://docs.aws.amazon.com/personalize/

Samples notebooks and reference architectures

https://github.com/aws-samples/amazon-personalize-samples

# AWS machine learning services for personalization

Amazon provides customers with choice when considering implementing personalization solution for their business



## Amazon Personalize

- Makes it quick and easy for developers and builders to implement AI and improve business outcomes
- No ML experience required
- Fully managed AI service that automates adding intelligence to your applications



## Amazon SageMaker

- Build, train, and deploy your own ML models quickly using a visual IDE
- All tools required for ML in a single service
- Prebuilt models, algorithms, and solutions plus AutoML
- Fully managed for scalability, performance, and cost-effectiveness

# Thank you!



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