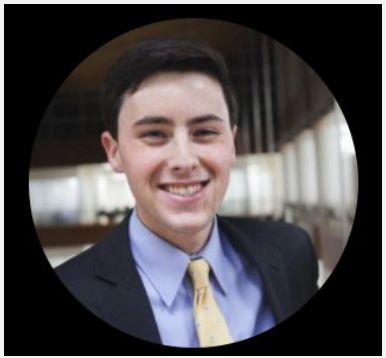
Unified ML Monitoring Hands-on Workshop

Presented by

Max Fisher, *Solution Architect*

Amy Wang, *Senior Solution Architect*

Meet the Presenters



Max Fisher
Solution Architect
max.fisher@databricks.com

Salma Mayorquin
Solution Architect
salma.mayorquin@databricks.com

Agenda

- Introductions, 5m
- Databricks Overview & Lakehouse, 5m
- Unified ML Monitoring Overview, 15m
- Hands-on lab, 55m
- Q&A, 10m

The Data and AI Company

Lakehouse

One simple platform to unify all of your data, analytics, and AI workloads

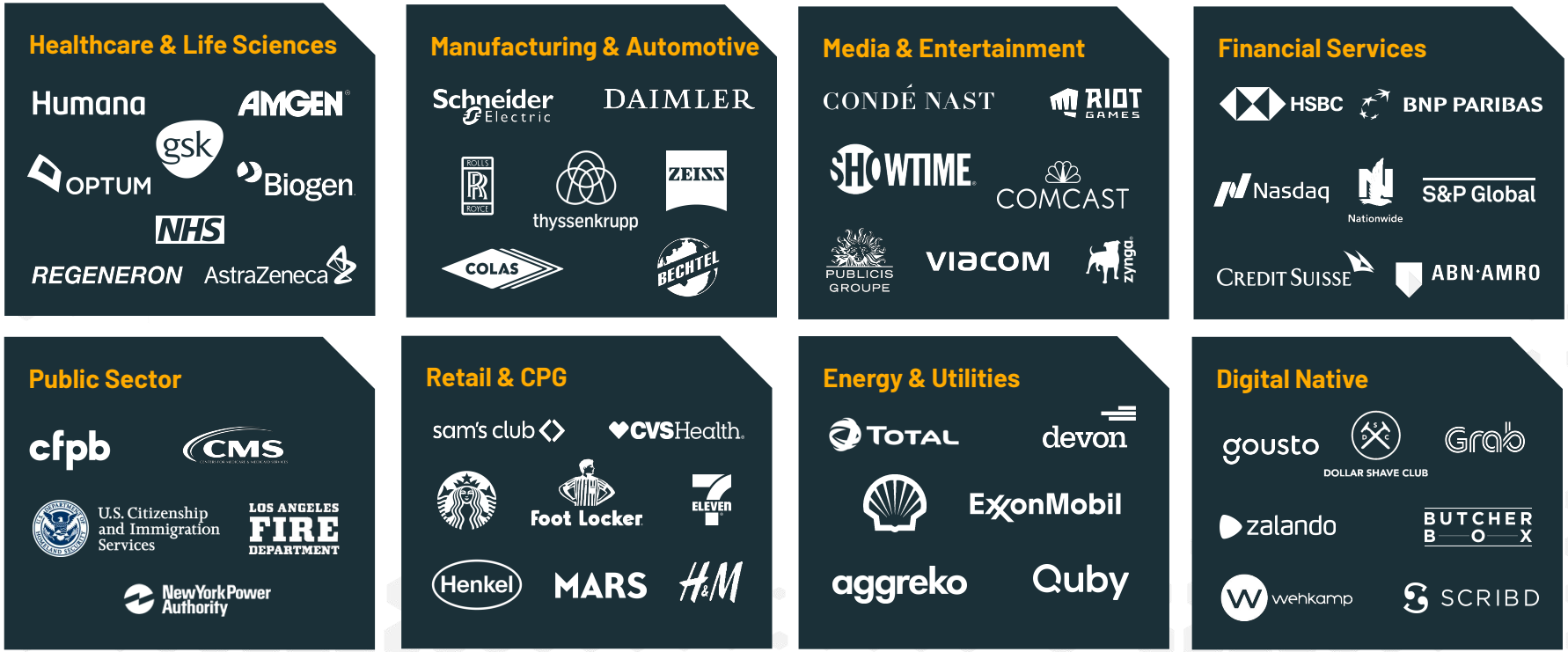
CUSTOMERS

5000+

Across the globe

ORIGINAL CREATORS

We're working with enterprises in every industry



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What is the “Lakehouse” Paradigm?

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Data Warehouses

Pros

- Great for Business Intelligence (BI) applications

Cons

- Limited support for Machine Learning (ML) workloads
- Proprietary systems with only a SQL interface

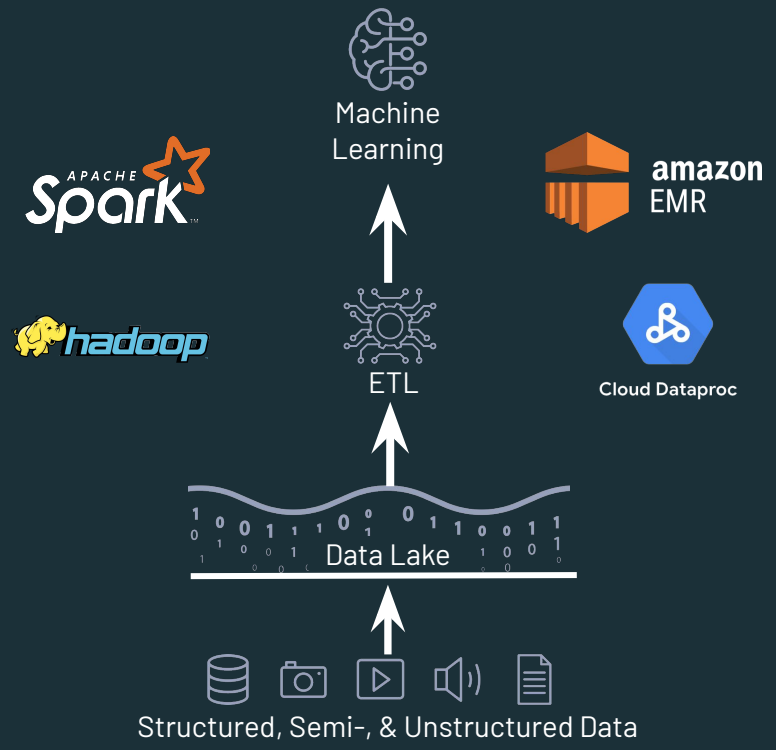
Data Lakes

Pros

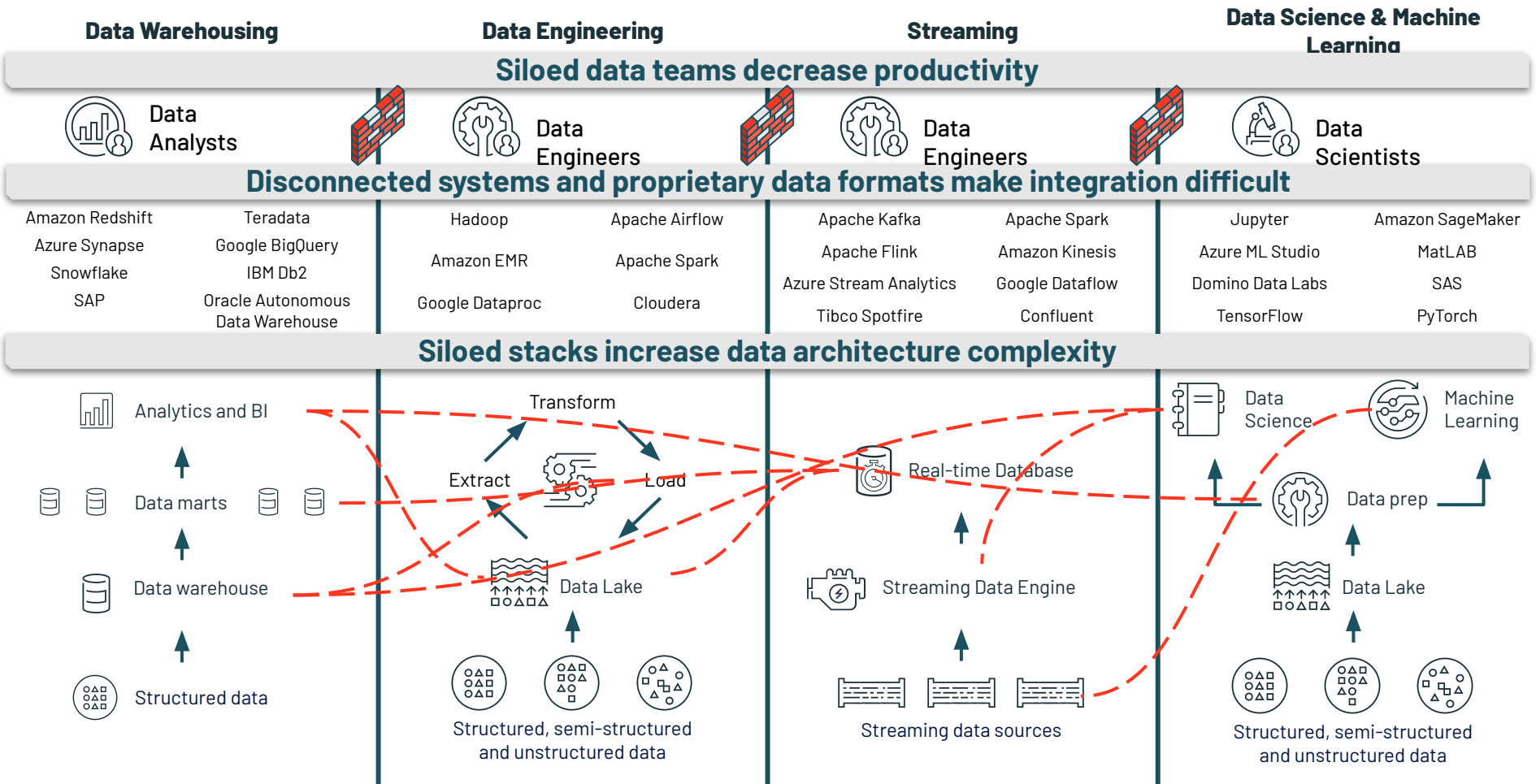
- Supports ML
- Open formats and big ecosystem

Cons

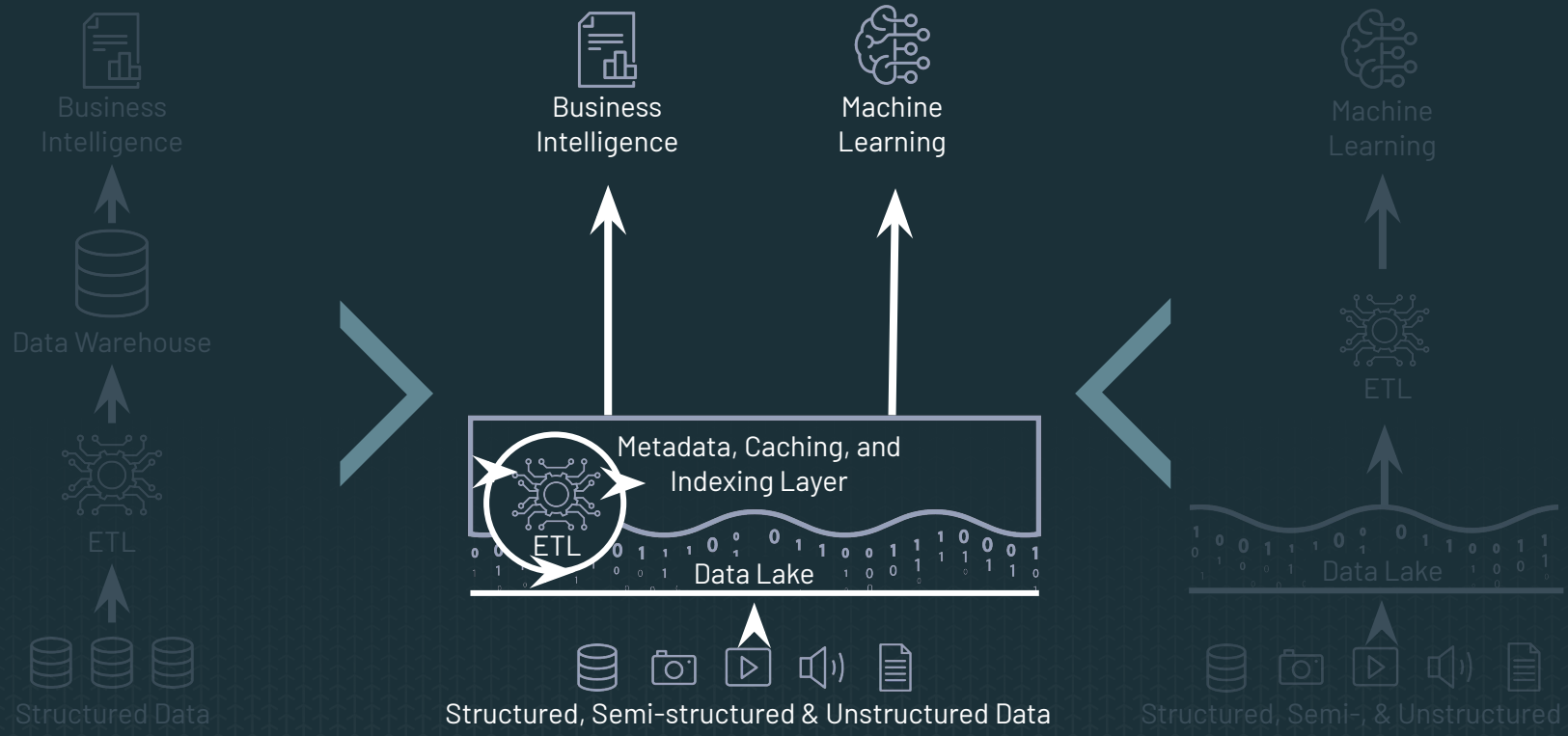
- Poor support for BI
- Complex data quality problems



Today, most enterprises struggle with data



New Way Forward: lakehouse



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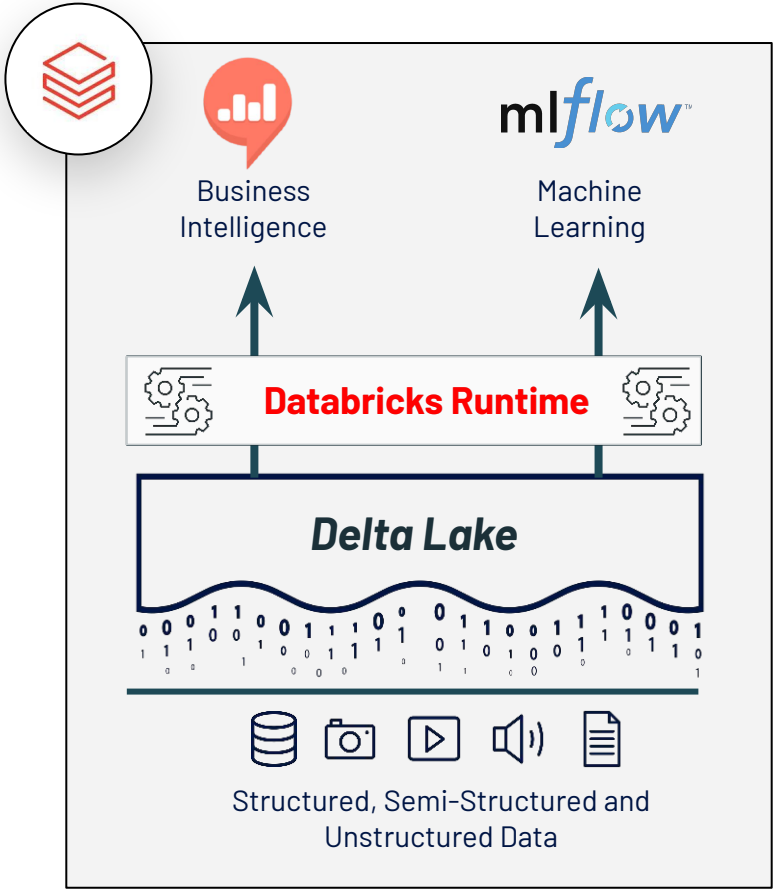
The Databricks Lakehouse Platform



Introduction to the Lab

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Quick Poll: What is the biggest challenge you face with your Machine Learning Projects?

- Figuring out the right algorithm to use to train your model?
- Tracking all the data associated with training and testing your model?
- Operationalizing your finished models?
- Governing the lifecycle of your machine learning models?

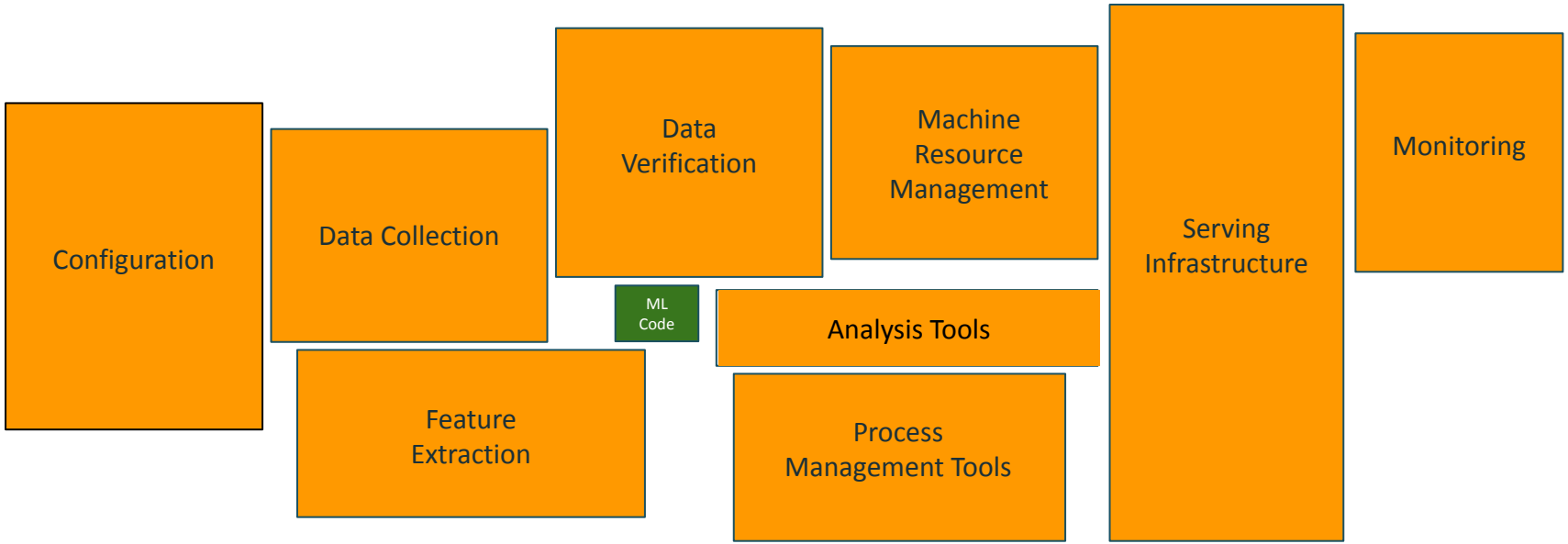
Quick Lab Setup

- Start Your Engines (Clusters)!
  - Go to the Databricks Workspace and Create / Start the following:
    - Interactive Cluster | Databricks Runtime 7.5+ ML
    - SQL Endpoint | Small+
- Upload the Notebooks

Unified ML Monitoring on Databricks

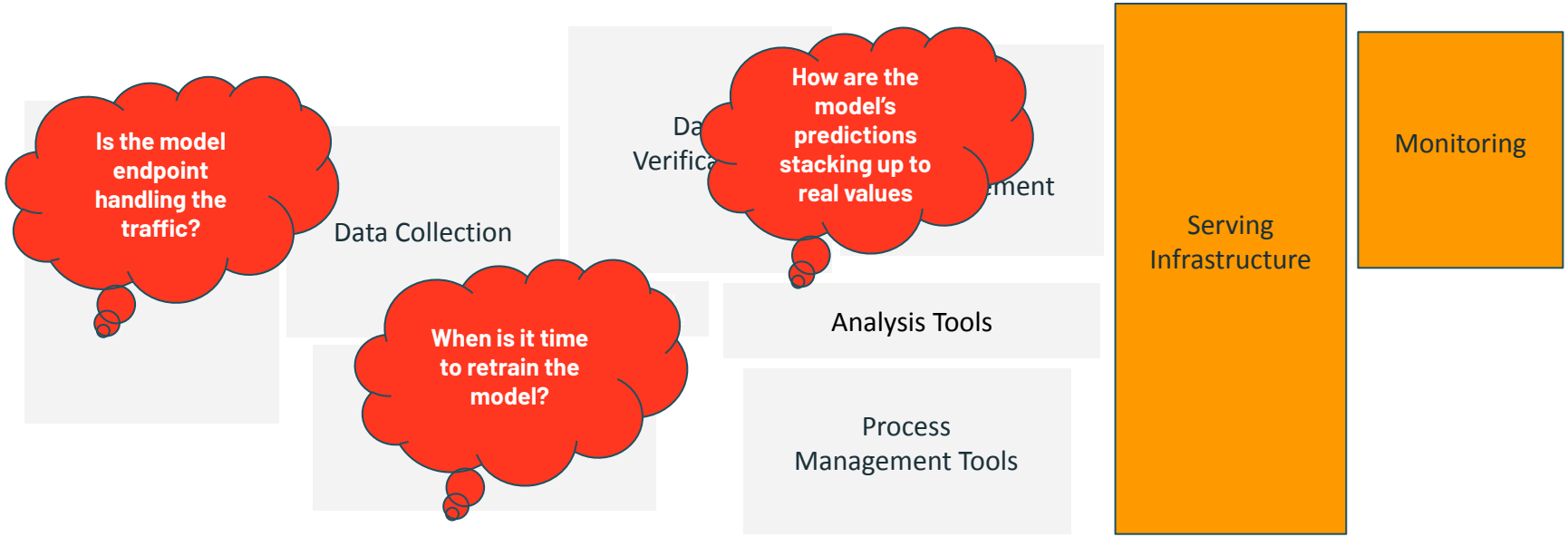
- Why Monitoring Models Is Hard
- How Databricks Completes the Picture
- **Lab**: Unified ML Monitoring Dashboard

Hardest Part of ML isn't ML, it's Data



Only a small fraction of real-world ML systems is composed of the ML code, as shown by the small green box in the middle. The required surrounding infrastructure is vast and complex.

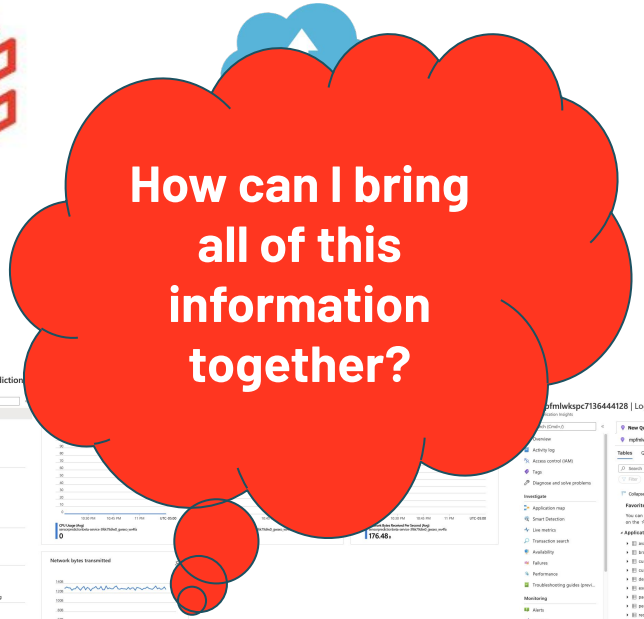
Monitoring Can Be A Complex Part of this Problem



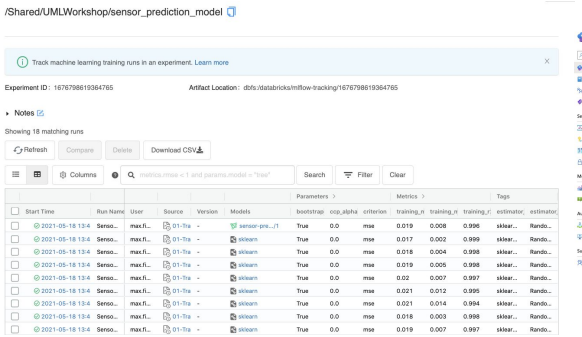
The Answers Live In Many Places

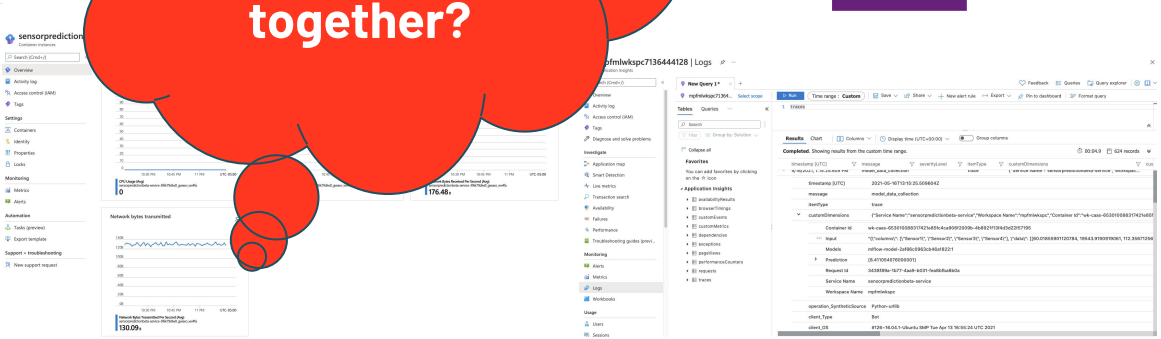
ML Model

ML Model



mlflow™





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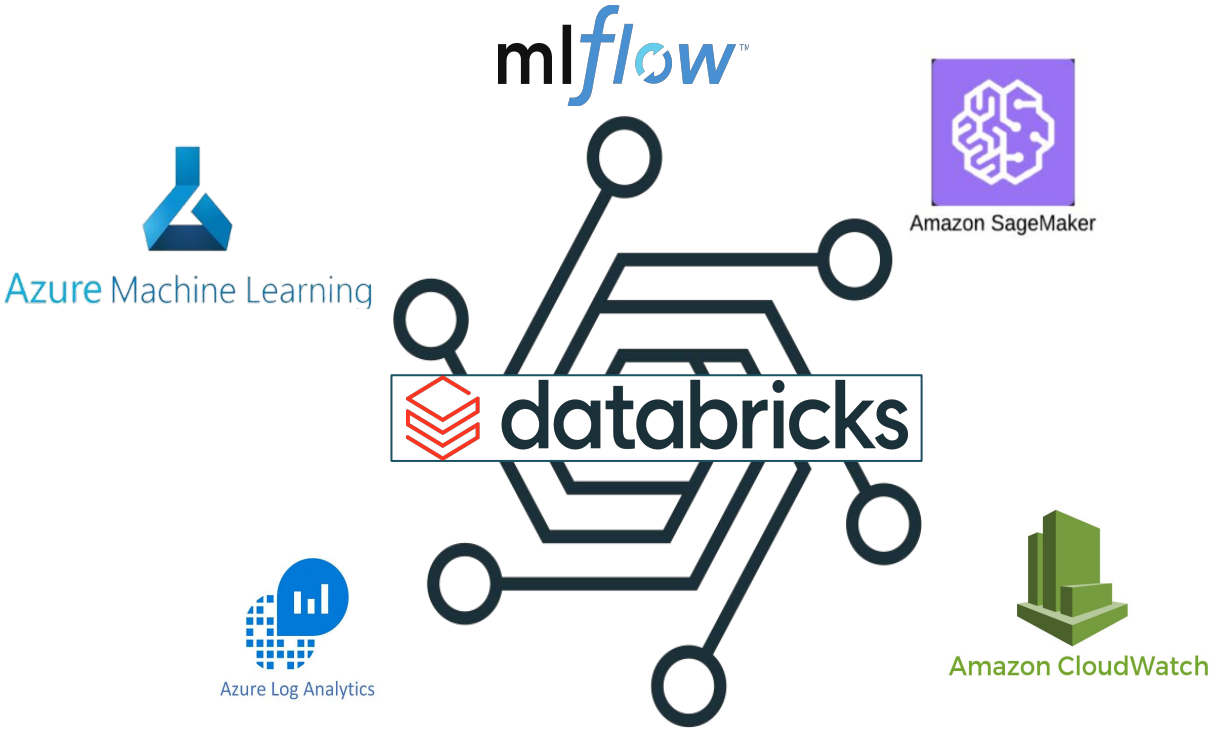
The Solution



Deploy to any cloud and manage in one place, with Databricks + MLFLow

Easily Govern and Manage Model Metrics Data with Delta Lake

Baked-In Visualization and Monitoring Tools from Databricks SQL

How Can I Do This in Databricks?

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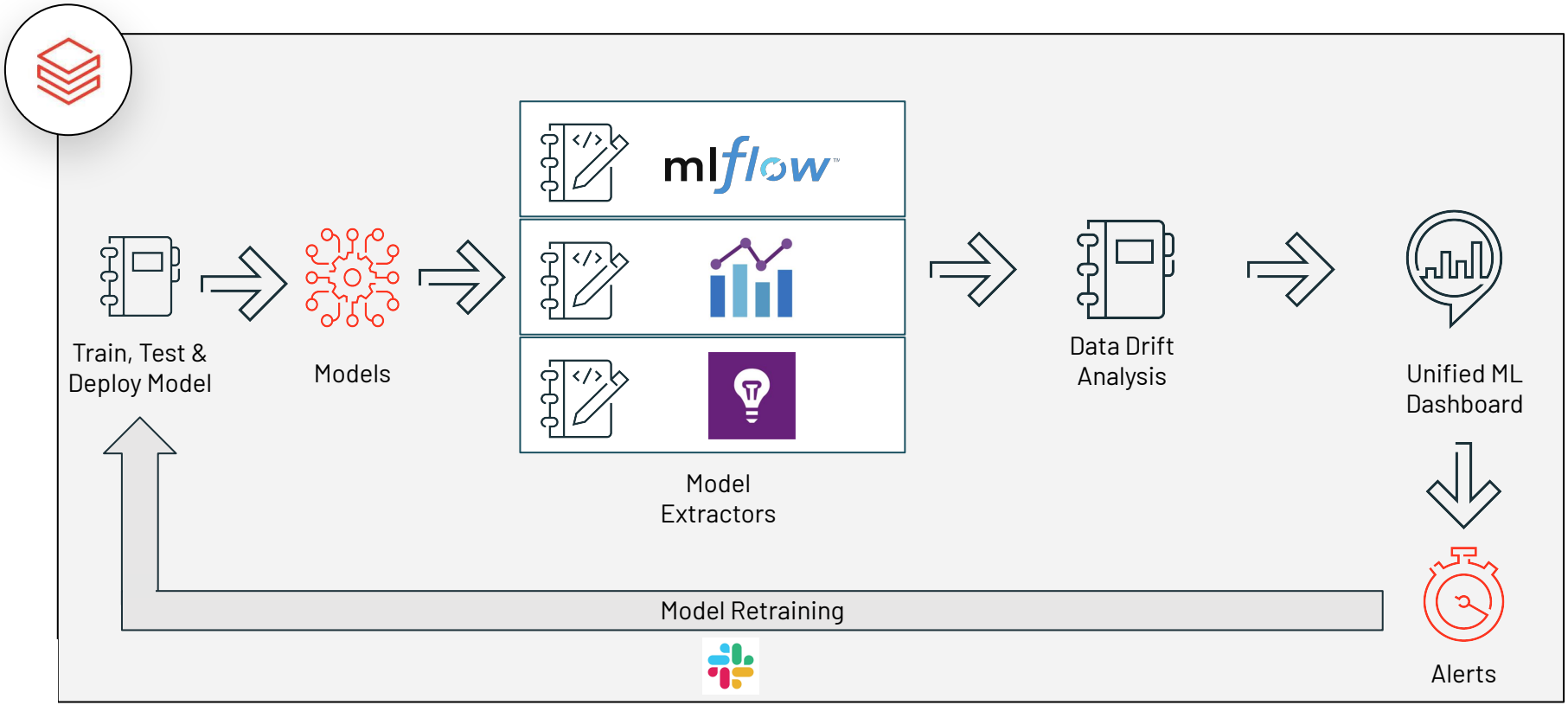
Architecture of the Solution



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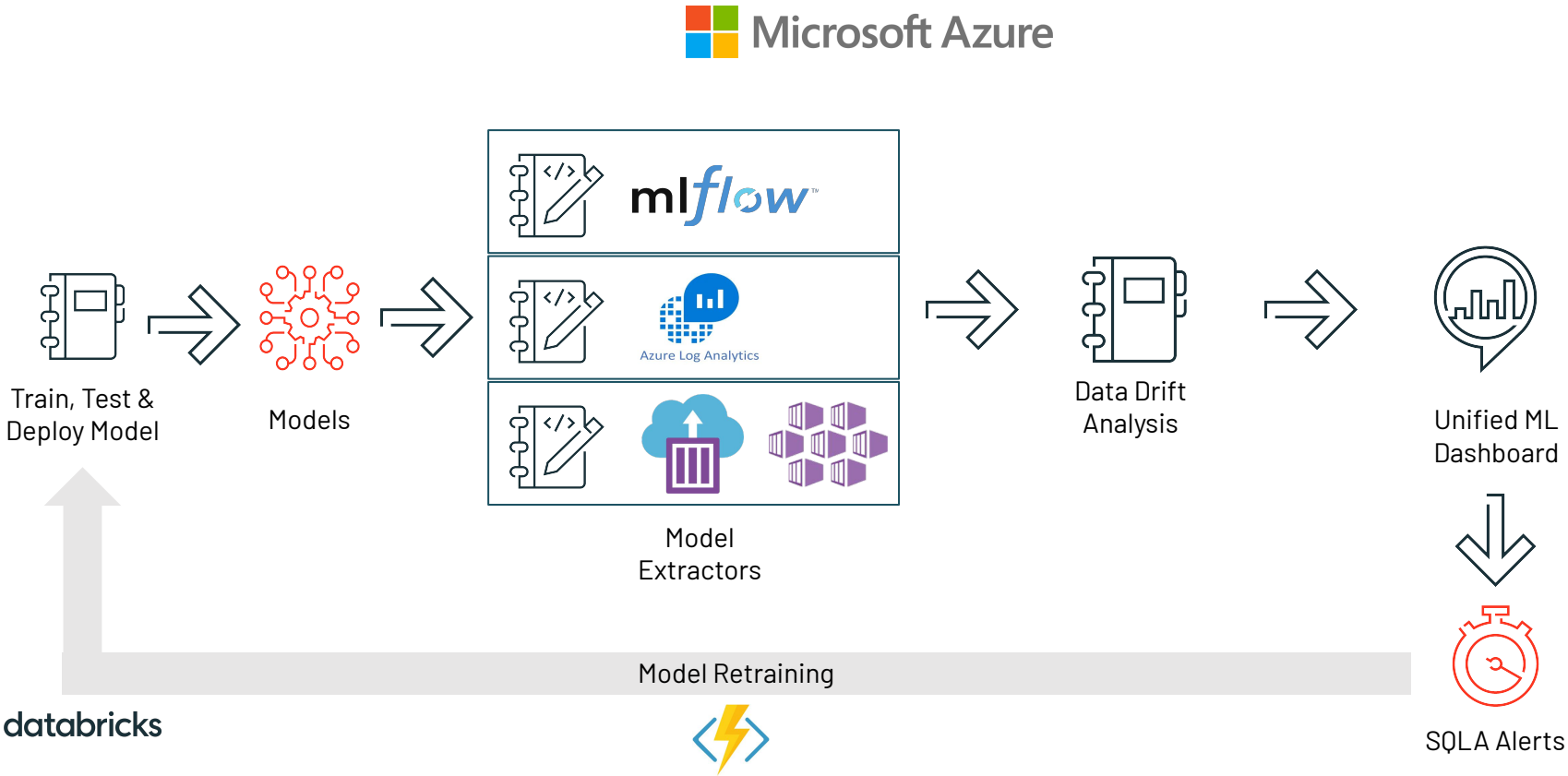
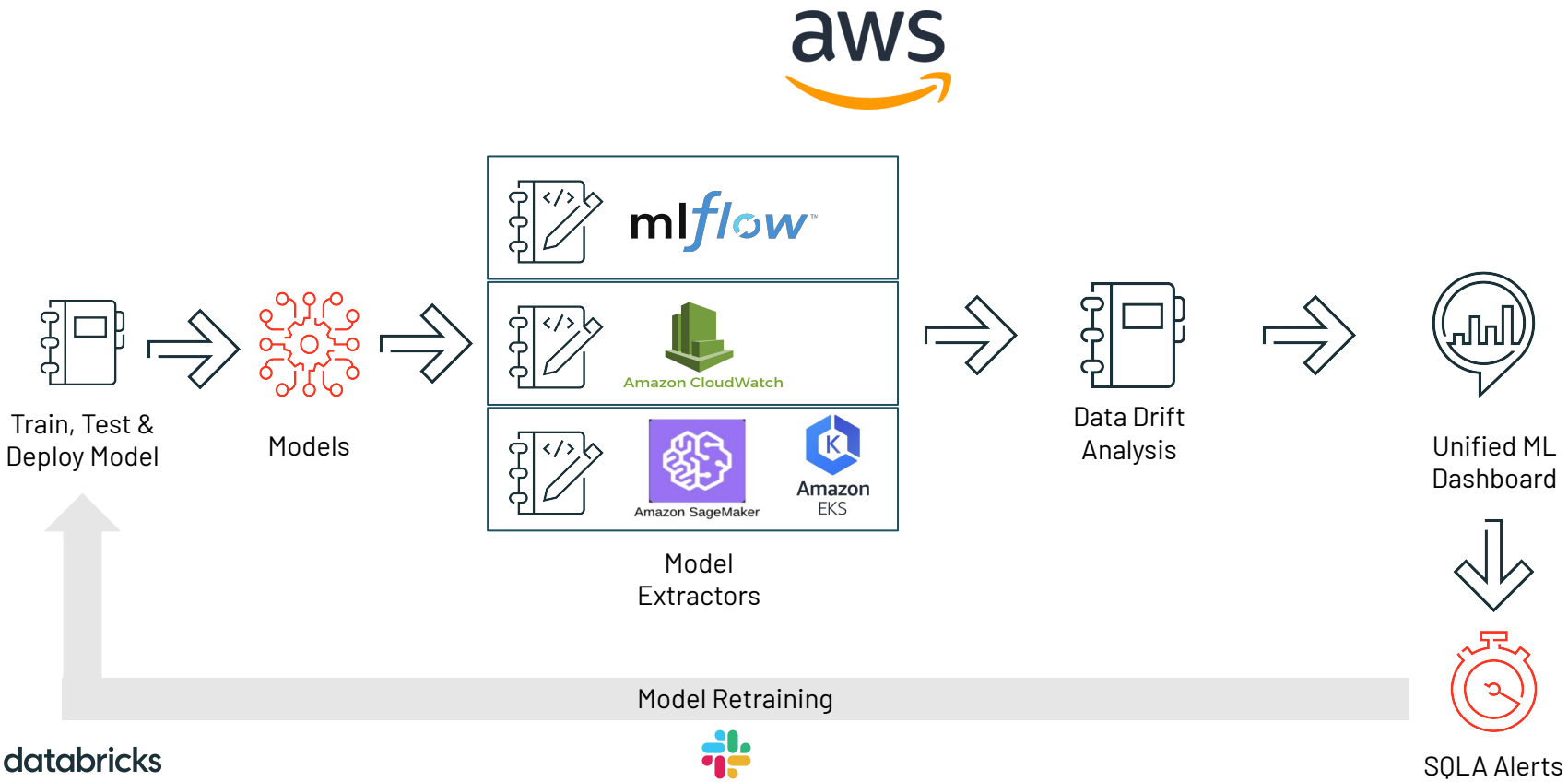


Architecture of the Solution



Hands-on Lab

Max will be leading the lab

Amy is available in the chat to answer questions or provide assistance

Content Links

- GitHub Repository for all Lab Materials:
  - mpfis/unified-ml-monitoring-on-databricks (github.com)
- PDF of this Presentation
- Lab guide

Similar Workshops

- Introduction to Delta and Lakehouse
  - Description
  - First and third Tuesday every month, sign-up link
- What's new in Databricks?
  - Description
  - First Wednesday every month, sign-up link

Q&A and Post-workshop Discussion

Thank you for joining us. We're here to answer any questions you have about the content, Databricks, or anything else. We'll send out a copy of this presentation after we wrap up.

We'll send out a survey after the workshop. Let us know what you liked and didn't like so that we can continue to improve.

If you're not currently in contact with your Databricks account team and would like to be, let the presenters know and we can assist.

Contact info for presenters: max.fisher@databricks.com, amy.wang@databricks.com

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Looking for applicants with backgrounds in any of these skills:
data engineering, machine learning, **or** analytics.

Also hiring in Europe and Asia.

Why is capturing this information important?

83% CEOs say AI is a strategic priority

MIT Sloan Management Review

$3.9T Business value created by AI in 2022

Gartner

85% Of big data projects fail

Gartner

87% Of data science projects never make it into production

VB